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Educational News and Editorial Comment

CELEBRATING THE TERCENTENARY

Now that we are actually in the tercentenary of the establishment of our first secondary school, signalizing the event is in order. Celebration will be stimulated by President Roosevelt's statement concerning the tercentenary, which has been released through the office of the secretary of the National Education Association.

THE WHITE HOUSE
WASHINGTON

AMERICAN HIGH SCHOOL ANNIVERSARY

The year 1935 ushers in an important anniversary in the life of the American people. Three hundred years ago the first American high school—the Boston Latin School—was founded. It was established in 1635 only fifteen short years after the landing of the Pilgrims. From a small beginning with one instructor and a handful of students has grown the splendid service now provided for more than 6,000,000 young Americans by 26,000 public and private high schools. These schools are developing the most precious resource of our nation, the latent intelligence of our young people. It is worth noting that social progress in the United States is following swiftly on the heels of the remarkable expansion of educational opportunity at the high school level.

I hope that the young people of every high school in the United States will

celebrate this three hundredth anniversary. I hope they will celebrate it in a manner which will bring vividly before parents and fellow townsmen the significance, the contribution and the goals of their schools.

FRANKLIN D. ROOSEVELT

November 20, 1934

Plans for celebrating the event are presented in a recent publication of the Department of Secondary-School Principals of the National Education Association, Bulletin Number 52, captioned *The Tercentenary Celebration*. Besides presenting the appropriate programs of the department to be given at its meetings in February, the bulletin contains a definition of the purpose of the celebration, suggestions for community programs, commencement programs, a list of books to read, and the like. The December *Journal of the National Education Association* contains two pages on the subject, one headed "Some Tercentenary Suggestions" and the other "300 Years of American High Schools." This second page includes the following list of "Milestones in the Development of American Secondary Education."

1635—Founding of the Boston Latin Grammar School.

1647—The Massachusetts Law of 1647 ordered "that where any town shall increase to the number of one hundred families or householders, they shall set up a grammar school, the master thereof being able to instruct youth so far as they may be fitted for the university."

1751—Franklin's Academy in Philadelphia represented the transition which took place in the Latin schools toward a more practical curriculum. In addition to Latin the new academy included the English School and the Mathematical School.

1778—Establishment of first Phillips academy at Andover, Massachusetts, followed by a second in 1781 at Exeter, New Hampshire. These schools were influential in giving the academy recognition as an institution of secondary education.

1781—At this time the period characterized by the Latin grammar school was coming to a close, and the period in which the academy dominated was beginning.

1821—Establishment of the first public high school at Boston.

1856—Central High School, the first coeducational high school, was opened in Chicago.

1865—Approximate close of the period characterized by the academy, and beginning of the period characterized by the free public high school.

1872—The Kalamazoo Case established the precedent, which has since been followed, that the state has a legal right to use public funds for high-school support.

1892—Appointment of the Committee of Ten by the National Education Association.

1899—Committee on College Entrance Requirements of the N.E.A. made the specific recommendation for a unified six-year high-school course of study beginning with the seventh grade.

1902—Joliet, Illinois, established the first public junior college in connection with a city public-school system.

1909—The first active development of the junior high school in Berkeley, California.

1911—Appointment of the Committee on Economy of Time of the National Education Association.

1918—Publication of the report of the N.E.A. Commission on the Reorganization of Secondary Education entitled "Cardinal Principles of Secondary Education."

1927–28—The publication of epoch-making junior and senior high school curriculum studies by the Department of Superintendence.

1932—Publication of the report of the National Survey of Secondary Education, conducted by the U.S. Office of Education.

1934—Publication of the report of the Commission on Social Studies of the American Historical Association.

The *New York Sun* reports that several hundred requests have been received by the United States Post-Office asking that Postmaster General James A. Farley authorize the issuance of a special stamp in commemoration of the tercentenary of the founding of the Boston Latin School. Decision on the subject will not be made known until later in the year. From the standpoint of significance in the life of the American people, the event is surely as deserving of recognition in this way as other events that have been thus signalized.

Academic Freedom in the Civilian Conservation Corps

A feature of the New Deal that has been lauded as much perhaps as any other is the Civilian Conservation Corps. Among the social benefits which are frequently mentioned as being derivable from it are the provision of constructive employment for young men who would otherwise be idle and the provision of a situation in which an educational program of rather remarkable possibilities can be developed. It is on the ground of the educational promise of the plan that the *School Review* has joined in the general acclaim. This section of the December issue carried an item indicating the educational

promise of the organization. Recent events have reduced the feeling of confidence in this promise as the plan is operating under present auspices.

Early in the projection of the education program of the corps, the United States Office of Education was designated as adviser. Happily for the progress of the program, it was found possible to arrange for the preparation and the publication of a series of instructional pamphlets under a grant from the General Education Board to the American Council on Education. The editor of the series is Percy W. Bidwell, of the University of Buffalo. The first of these pamphlets, *You and Machines*, is now ready for use. It was prepared by William F. Ogburn, professor of sociology at the University of Chicago, an acknowledged authority on social trends. The text, written in popular style, has been cleverly illuminated with drawings by F. G. Cooper. The following paragraphs, with which the pamphlet closes, illustrate its temper and quality.

> People who do not want to change are called conservatives. They want to bring back the Good Old Days. But we know that sort of thing is foolish. We can't bring back the Good Old Days, no matter how much the old men want them. For the machine is forever changing things. Some of the conservative old men try to pass laws to stop change. One might as well brush back the tides with a broom. Passing laws will never do it. If they want to stop change they will have to break up the machines or, better still, poison all inventors.
>
> It is Youth to whom we must look—not old men. They must learn to adjust themselves to the Machine. Perhaps they can see in advance what some of its effects will be. Our ancestors had the problem of adjusting themselves to snow and ice, to the saber-toothed tiger and the woolly rhinoceros. The problem of the modern age is to adjust itself to a new monster, the Machine. Its habitat is not the forest, but the modern city. The future is in the hands of Youth.

A disturbing fact at this writing is that the admirable instrument of economic and social education of young men represented in the first of the series of pamphlets has been barred from the curriculum of the CCC. Robert Fechner, director of the corps, who is vice-president of the International Association of Machinists on leave, is reported to be responsible for this action. The *Chicago Tribune*, reporting the incident, relates that Fechner "refused to say why the booklet was barred, contenting himself with the announcement it was unsuitable." According to the *Tribune*, one of Fechner's assistants asserted that the director "felt the work presented the problem of

machines in civilization without giving an answer, thus offering a 'philosophy of despair.' " The reader may in part judge for himself from the paragraphs quoted from the pamphlet whether this criticism is a proper one and may suspect that other motives underlie the refusal to permit use of the publication.

The *Chicago Tribune* indicates that Professor Ogburn was reluctant to discuss the barring of the pamphlet because he did not know what was in Director Fechner's mind.

"I do not think the work was at all propagandistic. Rather it was traditional. As to the report that it was over-pessimistic, which may not be the correct explanation, I should retort that it is rather optimistic.

"It may be that the whole question will revolve around whether it is considered wise to give the youth in the camps real information on economic and social questions or to feed them nothing but Pollyanna stuff; whether censorship of education is to be considered proper or improper."

Fechner's action has stirred up a storm of remonstrance among educators in close touch with this effort to aid in curriculum construction for the corps. The *New York Times* states that the protest came to a head when J. W. Crabtree, secretary of the National Education Association, threatened to demand a hearing unless Fechner rescinded his order.

Mr. Crabtree notified Secretary Dern on Wednesday that in the hope Mr. Fechner would withdraw the ban on the booklet, he was "waiting a few days before arranging to ask for a formal hearing on this violation of the principles of academic freedom and in defense of the Office of Education.

A few days earlier Crabtree had taken up the issue directly with Fechner. The *New York Times* reports that he wrote:

"Why did you do that? Why not rescind that order? You do not want to bring criticism upon your chief or upon the President of the United States.

"As a friend, let me advise that the authorities above you will not be able to protect you in the stand you have taken.

"Our association is only one of many that will ask for hearings on the question. I am sure you made your decision hastily, and I trust you will recall it and avoid the difficulty already in sight."

Another group disturbed over the interference with the plan to use the booklet is the American Association of University Professors. At the meeting of this association held in Chicago early in December, criticism of Fechner's action culminated in discussion of the following resolution.

The association is informed that the director of the Civilian Conservation Camps shows a disposition to interfere with the freedom of teaching and to obstruct the program of the educational director of the camps.

This association respectfully requests President Roosevelt, to whom the director of the CCC is alone responsible, to review the matter.

Furthermore, this association requests President Roosevelt and the congress to expand greatly the educational program of the camps in order that the young men may have the opportunity of becoming more intelligent with regard to the industrial and social problems which confront the civilized world.

The full resolution quoted was not finally passed by the association but was referred to the council of the organization with power to act. Subsequently the council approved the first two paragraphs. The approval puts the association on record as condemning the interference with the freedom of teaching in the CCC. The third paragraph also merits approval, especially as it recommends constructive expansion of the educational program for the camps.

The outcome of the controversy will be watched with concern. It is just as essential to the real success of the CCC as to that of the schools and other educational agencies that the organization be left free to teach the truth as it is known.

Selected References in Education, 1934

This issue of the *School Review* begins publication of the third annual cycle of selected and annotated references covering practically the whole field of education which is being published cooperatively by the *School Review* and the *Elementary School Journal*. The first cycle was rounded out in the issues of these two journals for December, 1933, and was subsequently issued in monograph form under the title *Selected References in Education, 1933*. The reception and sale of the monograph has justified continuance of the publication of these lists in that form, and the second cycle, rounded out in the issues of December, 1934, is being assembled and published in identical format under the title *Selected References in Education, 1934* (Supplementary Educational Monograph Number 42).

Regular readers of the *School Review* and the *Elementary School Journal* will not need to be reminded that the usefulness of the lists is assured by their having been winnowed from the vast annual body of educational literature by almost forty recognized specialists in a

dozen different higher institutions and is enhanced by annotations indicating the scope and the significance of all items included.

The monographs may be ordered from the Department of Education, 5835 Kimbark Avenue, Chicago, Illinois. The price of *Selected References in Education, 1934*, is 90 cents, the same as that of *Selected References in Education, 1933*. Both monographs may be purchased for $1.50 when ordered together.

The New Commissioner's "First Impressions"

Some of our readers undoubtedly heard on November 3 the broadcast over a national hook-up by Commissioner John W. Studebaker of the United States Office of Education—a brief broadcast in which the new commissioner gave his "first impressions." Because many readers certainly did not hear it and because even those who heard it will consider the statement well worth pondering, it is here quoted in full.

In light of the discussion in recent years concerning the rôle of the federal government in education, it is significant that Commissioner Studebaker conceives it as the obligation of the national government to maintain for education a great dynamic clearing-house comparable with that maintained for agriculture, finance, or industry and that he is opposed to "objectionable bureaucratic control from Washington."

I feel sure that the radio audience will be charitable with me if I do not give in these few minutes a clear picture of school conditions of the nation. I assumed the duties of the United States Commissioner of Education just eleven days ago. I am in a situation similar to that of a little ragamuffin who was being questioned by the principal of one of the Des Moines schools as a means of knowing the grade in which the boy should be enrolled. Among other questions the principal asked, "Lad, do you know your A B C's?" to which the boy replied quick as a flash, "Why no ma'am, I've only been here three minutes."

So as yet I scarcely know my A B C's about the policies and practices of the United States Office of Education. But I assure you that from this vantage point I shall be a diligent student of the problems of American education and of the possibilities of increasing and extending the service of the office which I represent.

In the few days that I have been here, I have nevertheless observed some things which to me are very significant.

Here in Washington are the central organizations of vast federal agencies for the regular and swift collection, tabulation, and interpretation of the facts con-

cerning agriculture, commerce, finance, industry, and natural resources, not only with reference to our own country, but also in relation to the four corners of the earth. A readily accessible and constant flow of accurate information about the weather, bank deposits, prices of commodities, carloadings, industrial production, labor payrolls, unemployment, imports and exports, corn, hogs, cotton, and a long list of other items has proved to be of inestimable value to the nation as it grew into its present position as a world-power.

One's pride in his country increases as he sees this great machine at work helping to sustain our economic life. Almost daily these national barometers measure the pulse of American business and pictorialize its conditions and trends. As a people we pool many of our resources for the support of this far-flung and highly organized network of fact-collecting and regulatory machinery, and we look to it for dividends of equivalent value.

All of this emphasis upon the elaboration of organization and methods looking mainly toward the strengthening of our economic life is obviously characteristic of a young nation with diversified and almost inexhaustible natural resources. There are evidences, however, that this emphasis upon the importance of our economic life has overshadowed and even subordinated our purposeful planning in the field of education. As a consequence, the organization of education in Washington shows no parallel when compared with the other agencies which I have mentioned.

I therefore cannot tell you this evening how many schools are closed in the country because of lack of funds, why the funds are not available, whether it is because the state has failed to do its duty while being able to, whether the local community has been relatively improvident, or whether both the state and the local community because of drought or sheer natural poverty have exhausted their wealth under excessive burdens of taxation in a valiant effort to give their children even the minimum of educational opportunities.

These illustrations are merely typical of many others which might be cited to show the lack of adequate and properly related machinery here in Washington and throughout the country by means of which we might measure the pulse of the great heart of American democracy, the schools of the nation. It is largely because of this lack of appropriate organization that I cannot give you as accurate a picture of American education as I believe you need and are entitled to.

The lessons of the depression and the repercussions of the retreat of democracy in the world at large with all the impending dangers to the hope of realizing the great American dream should cause all of us who believe in the intimate relationship of education and self-government to be willing to give the schools of the country the benefit of the kind of expeditious, accurate, and up-to-date service which is now commonly provided for the business aspects of our lives.

To do this, there will not be required a ponderous and excessively expensive organization in Washington. Neither does it imply objectionable bureaucratic control from Washington. I have worked too long on the frontier of American education, that is, in the management of a local system of public schools, to

forget the desirability of the maximum degree of state and local control of all governmental functions consistent with policies and plans for the largest common good.

What we must have is a scheme of educational organization modernized to fit the spirit and the practical needs of an interdependent society which demands swift-moving, co-operative effort. One of the cardinal virtues of democracy is that it may provide most adequately for the sharing of ideas and experiences. Education is the process by which this sharing procedure is systematized and accelerated. As I have indicated, this process is now efficiently utilized in manifold ways by the federal government. It is practiced more or less successfully wherever learning takes place: in the contact of child with the mind of an author, in group discussion, in interpretation by the teacher, in a radio talk like this, and in all other agencies of intercommunication.

What I am suggesting, then, is the need for a much better scheme than has yet been developed by which in the field of organized education itself and for the benefit of the public in general this interchange of ideas may be accelerated; by which with speed, regularity, and certainty the most outstanding successes of each state in its unique ventures in education, skilfully related and intelligibly interpreted, shall become the successes of all. That accomplished, the Office of Education in your federal government will be more than a clearing-house; it will be a dynamic force in sustaining our democratic ideals and practices and in constantly elevating the general level of American occupational and cultural life.

Postgraduates in the High Schools of Wisconsin

A phenomenon of the depression has been the backwash of graduates into the high school. Denied opportunities either of continuing their education in college and university or of employment, many have returned to the secondary school. Thus, the overcrowded conditions already to be found there have been accentuated. The study of the problem of the postgraduate in the high school has by no means been commensurate with its magnitude. One of the few timely studies available is that published in the November issue of the *Wisconsin Journal of Education*. The study was made by George B. Lyons, head of the department of science in the high school at Kohler, Wisconsin, with the co-operation of the State Department of Public Instruction. We quote the major portions of the brief article.

Problem and Scope of the Investigation

The professional literature which deals with the problem of postgraduate students in high schools is restricted, and the knowledge of the problem possessed

by the secondary-school administrator is usually limited to his own personal experiences. School superintendents and principals differ in their judgments of the graduate who returns to high school for postgraduate work. A few are convinced that the postgraduate is a trouble-maker without serious purpose in returning to school. There are others of the opinion that these students are serious minded and that the obligation of the high school is to make further educational provisions at the secondary level.

There is no question that opportunities for worth-while employment for youths under eighteen years of age have been curtailed, and the drastic social change thus brought about demands that the scope and efficiency of the educational system must keep step with this change.

Reorganization of the school program to provide for the increasing number of postgraduates may be a physical and financial impossibility in small communities where the present policy is to absorb postgraduates into the regular student body. Larger school systems may eventually organize an educational program designed chiefly for high-school graduates now unemployed and financially unable to enter college or university.

The problem of evaluating the educational provisions made for postgraduate students in the public high schools of Wisconsin was undertaken by the writer to seek facts which might aid administrators in arranging an intelligent program for those students instead of depending upon limited experiences.

A check-list inquiry form, approved by the State Department of Public Instruction, was mailed to 433 public high schools in Wisconsin on October 1, 1933. Replies were received from 312 high schools, which represent a 72 per cent response. One hundred and thirty schools reported postgraduates in regular attendance for the . . . . year 1933–34, and the same schools reported data as complete as the local situation would permit.

The distribution of these 130 high schools according to high-school enrolment was as follows: 25 high schools enrolled from 800 to 2,999 pupils; 21, from 400 to 799 pupils; 26, from 200 to 399 pupils; 34, from 100 to 199 pupils; and 24 high schools enrolled 1 to 99 pupils. This classification represents a fairly equal distribution of schools and gives a satisfactory basis for the evaluation of the data received.

Recent Tendencies in Postgraduate Enrolment in Wisconsin

The number of graduates who return to high school for additional school work has rapidly increased since the school year 1929–30.

The data in Table I reveal that there is a growing demand for educational opportunities beyond the twelfth grade by an increasing number of high-school graduates, and schools and other educational agencies will need to expand their facilities to care for the constantly increasing postgraduate enrolment and to provide adequately for the varied needs and interests of those enrolled.

Postgraduate enrolment in high schools of different size.—That a distinct relationship exists between the size of the school and the number of postgraduates enrolled is shown by data in Table II. It is significant that the dominant postgraduate enrolment is in the larger high schools where a greater number of educational opportunities are offered. The smaller high schools are necessarily limited in the number of postgraduates they may accommodate. . . . .

TABLE I

RECENT GROWTH OF POSTGRADUATE ENROLMENT IN PUBLIC HIGH SCHOOLS STUDIED IN WISCONSIN FROM 1929–34

Year	High Schools Reporting Postgraduates	Corresponding High-School Enrolment	Postgraduate Enrolment	Gain in Postgraduate Enrolment
1929–30	12	2,867	106	.....
1930–31	14	3,521	140	34
1931–32	31	8,528	434	294
1932–33	58	17,167	874	440
1933–34	130	34,190	1,314	440

TABLE II

RELATIONSHIP BETWEEN SCHOOL ATTITUDE TOWARD POSTGRADUATES AND NUMBER OF POSTGRADUATES IN ATTENDANCE

Size of School	Number of Postgraduates	Number of Schools That Encourage Postgraduates	Number of Schools That Discourage Postgraduates	Number of Schools That Have No Definite Policy
800–2,999	639	14	1	10
400–799	218	9	2	10
200–399	165	19	1	6
100–199	206	18	2	14
1–99	86	9	2	13
Total	1,314	69	8	53

Distribution of other educational facilities in the community.—The postgraduate enrolment is materially affected by the presence of other educational facilities in the community. Sixty-six high schools, or 51 per cent of the schools studied, reported such institutions in the community as vocational schools, continuation schools, and teachers' colleges that were offering educational opportunities for the high-school graduate. There is a marked tendency for postgraduate enrolment to be low in high-school communities where other institutions provide postgraduate opportunities.

The Attitude of High-School Officials toward Postgraduate Enrolment

Postgraduate enrolment is affected by the attitude of school officials toward the graduate who returns for additional work. At the outset a favorable attitude by boards of education, administrators, and teachers will encourage postgraduate enrolment.

The data in Table II reveal that for the past year, 1933–34, in 69 high schools, or 53 per cent of the schools studied, the administrators definitely encouraged postgraduates to return to the high school. In these schools the mean number of students in attendance is 13. Eight schools, or 6 per cent, discourage the return of postgraduates, and in these schools the mean attendance is 4 students. Fifty-three schools, or 41 per cent, are neutral or have expressed no definite policy toward postgraduates, and the mean number of students attending these schools is 8.

On the whole, the attitude of administrators is favorable toward postgraduate students. The prevailing tendency is for students to enrol more frequently where encouragement is offered. . . . .

The Curriculums in Which the Dominant Postgraduate Enrolment Exists

The curriculum opportunities available for postgraduates are ordinarily determined by the needs of the undergraduates and are usually limited to the undergraduate curriculum. Special subject offerings for postgraduates are conspicuous by their absence, and students enrol chiefly in those courses which they did not elect to take during regular high-school attendance.

The data in Table III reveal that ninety-three schools reported the majority of their postgraduates in the commercial curriculum, whereas nineteen schools reported their dominant enrolment in the college-preparatory curriculum.

The commercial and college-preparatory curriculums are extensive and include many subject offerings. However, all the subjects in these curriculums are not open to postgraduates; some schools close certain classes to students returning for extra work. [Sixty-eight] per cent of the schools studied have placed no restrictions upon the subjects in which postgraduates may enrol. The tendency in the 32 per cent of the schools limiting their subject offerings to postgraduates is [toward limiting enrolment] in the commercial subjects. It is significant that the number of schools limiting their courses increases with the decrease in the size of the high school. Twenty-two, or 54 per cent, of the schools offering a limited curriculum have definitely closed certain classes to the student who comes back for extra work. Eleven schools, or [27] per cent, have excluded postgraduates from all classes which are overcrowded. Four of the large high schools have closed all two-year subjects, foreign languages, and subjects requiring a prerequisite.

Several uncommon practices reported by high schools include the following: thirteen schools permit postgraduates to enrol only in advanced courses offered

in the eleventh and twelfth grades; four schools permit enrolment in the social sciences only; and four schools enrol students in subject offerings prerequisite to courses offered by the Extension Division of the University of Wisconsin. Four schools permit postgraduates to enrol in any course not taken before, providing that the class is not overcrowded, and one school permits students to repeat a subject of undergraduate standing in an effort to raise the previous grade for college-entrance purposes.

It is obvious that the tendency of high schools is toward centralization of the work for postgraduates in the more advanced courses of the junior and senior years and where teacher load and room capacity will permit.

TABLE III

RELATIONSHIP OF SIZE OF SCHOOLS TO NUMBERS OF SCHOOL CURRICULUMS IN WHICH DOMINANT POSTGRADUATE ENROLMENT EXISTS

SIZE OF SCHOOL	DOMINANT CURRICULUMS			
	Commercial	College-Preparatory	General	Trade
800–2,999	13	4	2	1
400–799	15	3	1	.....
200–399	22	3	1	.....
100–199	26	5	3	.....
1–99	17	4	2	.....
Total	93	19	9	1

Present tendencies in extra-curriculum activities.—Extra-curriculum adjustment is being made for postgraduate students at this time in spite of financial reverses. Nineteen schools, or 12 per cent, open all extra-curriculum activities to postgraduates, and the mean number of students in attendance is 17; twenty-eight schools, or 17 per cent, close all activities to these students, and the mean attendance is 9; and 114 schools, or 71 per cent, permit this group of students to participate in a limited number of activities, and in these limited cases the mean number of students in attendance is also 9. [These figures include the 130 schools giving data for 1933–34 and 31 additional schools having had earlier experience with postgraduates.]

Where activities are limited, postgraduates participate in those activities in which there is no interscholastic competition—namely band, glee club, general school functions, orchestra, intramural sports, school clubs, home-room programs, and dramatics.

APPRAISAL

The data reveal an increased postgraduate enrolment in the state of Wisconsin with a general lack of educational provisions for students at this level.

Secondary-school principals have sensed the responsibility of the high school in solving the problem, and, though in a majority of cases they have encouraged the return of the postgraduate, no educational program has been organized which would prove profitable to the returning student.

The high schools in Wisconsin are confronted with the serious problem of organizing adequate work for the increasing number of graduates returning for postgraduate study. In view of the present tendency to reserve most of the jobs in industry for adult workers, the problem is likely to grow more critical. While in some schools the small number of postgraduates may be absorbed into the regular student body as heretofore, in many of the schools it undoubtedly will be necessary to organize a special department for postgraduates with a different type of organization, teaching personnel, and courses offered.

The increased postgraduate enrolment with general lack of educational provisions for students at this level is evidence that at least the high schools located in centers of population should be extended upward for two years of junior-college work. Such an extension permits high-school graduates, who create our postgraduate problem, to obtain two additional years of secondary education without incurring the expense of going away from home. This organization also brings within the realm of feasibility for many students the continuation of education through college or university. The program provides an opportunity for training of an advanced type in a number of vocations which up to the present time is not satisfactorily provided for in the public-school system.

"Emergency Education" Schools in Pittsburgh

The author quoted in the foregoing item suggests the junior college as one solution of the problem of what to do for the postgraduate. A school system which is resorting to just this solution is that of Pittsburgh, Pennsylvania. The fact of establishment is announced in an issue of *Pittsburgh Schools*, organ of the school system. Five "Emergency Education" schools have been instituted in five high schools of the city. The statement of function of the schools accompanying the announcement is to the effect that a large number of young men and women have been graduated from the high schools of the city and because of the depression have been denied the privilege of attending college. The Emergency Education schools have given these young persons the opportunity of continuing their education. The schools are referred to as being on a "junior-college basis." The subjects offered vary somewhat from school to school but for the group as a whole include English, public speaking,

history, sociology, science, zoölogy, and college algebra. The offering in each school extends to three or four subjects, and the total of class enrolments in all five schools is almost nine hundred. The announcement does not report the number of different students represented by these figures.

Trends in School Enrolment

Advance sheets of the chapter on "Statistics of State School Systems, 1931–32" from the *Biennial Survey of Education in the United States: 1930–1932* (Office of Education Bulletin Number 2, 1933) have lately been made available and contain interesting and signifi-

ENROLMENT BY GRADE, 1930 AND 1932

Grade or Year	Enrolment		Number		Per Cent	
	1930	1932	Increase	Decrease	Increase	Decrease
Kindergarten	723,443	701,403	.....	22,040	.....	3.05
First	4,150,919	3,930,196	.....	220,723	.....	5.32
Second	2,802,914	2,776,378	.....	26,536	.....	0.95
Third	2,732,239	2,663,524	.....	68,715	.....	2.51
Fourth	2,599,229	2,589,098	.....	10,131	.....	0.39
Fifth	2,382,491	2,462,563	80,072	.....	3.36	.....
Sixth	2,256,249	2,277,913	21,664	.....	0.96	.....
Seventh	2,029,736	2,052,825	23,089	.....	1.14	.....
Eighth	1,601,373	1,681,520	80,147	.....	5.00	.....
Total elementary	21,278,593	21,135,420	.....	143,173	.....	0.67
First	1,626,823	1,777,608	150,785	.....	9.27	.....
Second	1,192,185	1,387,331	195,146	.....	16.37	.....
Third	879,525	1,066,755	187,230	.....	21.29	.....
Fourth	700,889	871,786	170,897	.....	24.38	.....
Postgraduate	.....	36,541	36,541	.....	.....	.....
Total secondary	4,399,422	5,140,021	740,599	.....	16.83	.....
Grand total	25,678,015	26,275,441	597,426	.....	2.33	.....

cant evidence on many aspects of the nation's schools. One of the first tables presents figures on enrolment grade by grade for the country as a whole in 1930 and 1932 and reports figures disclosing increases and decreases. The table in question is reproduced here,

and attention is directed to a few of the most important inferences. Gross enrolments in the lower elementary grades show an actual decline, while those for all grades above the fourth show increases. The decline in lower grades must reflect the declining birth-rate. Either the elementary grades from Grade V upward do not yet reflect so much this declining birth-rate, or the decline is offset by better enforcement of laws compelling attendance and by increased popularization of education. Increases at the high-school level were astonishingly large, particularly for the two-year interval represented. A glance at the percentages of increase through the high-school period finds them mounting from the first year upward. The explanation is increased popularization, accentuated by a lack of opportunities for employment. Most of this influx took place without enlarged accommodations and with reduced staffs and resources.

Who's Who in This Issue

William M. Bryson, formerly principal in the high school, Clairton, Pennsylvania. Percival W. Hutson, associate professor of education at the University of Pittsburgh. Edwin S. Lide, dean of the Wright City Junior College, Chicago, Illinois. Wilhelm Reitz, assistant to the Dean of Students and University Examiner at the University of Chicago. H. D. Richardson, director of research at the Deerfield-Shields Township High School, Highland Park, Illinois.

THE GENERAL CURRICULUM

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In 1931 Van Dyke concluded a report of trends in the high-school offering with the remark that "the programs of studies of thirty-five high schools of today show less agreement and less standardization than they did fifteen or twenty years ago" and that efforts are being made "to provide richer programs of studies and greater variation for the education of high-school pupils of today."[1] This development is plainly the expression of a vision of larger purposes for secondary education and an indication of the reaction to the pressure of an increasingly heterogeneous body of young people for educational advantages.

One of the features through which the current variation and diversification are being achieved is the general curriculum. This term suggests a sequence of studies leading to no specific goal but affording the pupil a cultivation of the powers needed for general living. More exact definition of the general curriculum, however, has not been available to date. To supply that need was the object of the investigation which it is the purpose of this article to report. What is the nature of the general curriculum? How commonly is it found? How extensively do pupils use it? Under what conditions and circumstances do principals guide pupils into it? The answering of these and kindred questions not only will afford an inventory of some practices in high-school administration but will serve to shed light on the problems of providing truly democratic secondary education.

OCCURRENCE AND NATURE OF THE GENERAL CURRICULUM IN PENNSYLVANIA HIGH SCHOOLS

This investigation was limited to the high schools of the third-class districts (with populations of 5,000–30,000) in Pennsylvania.

[1] George E. Van Dyke, "Trends in the Development of the High-School Offering. II," *School Review*, XXXIX (December, 1931), 746.

It was carried on in 1932 by the study of high-school reports made to the state, by analysis of high-school programs of studies, and by inquiries to principals.

According to the Classification Reports of Secondary Schools for the school year 1931–32, a report annually submitted to the State Department of Public Instruction by high-school principals, the 183 schools of third-class districts offer the curriculums indicated in Table I. The main point of interest in the table is that the general curriculum ranks third in frequency of appearance. Among these 183 schools the number of curriculums found within a single school varies

TABLE I

FREQUENCY OF THE OFFERING OF VARIOUS CURRICULUMS IN THE 183 HIGH SCHOOLS OF THIRD-CLASS DISTRICTS IN PENNSYLVANIA

Curriculum Offered	Number of Schools
Academic	178
Commercial	168
General	112
Practical arts	27
Industrial	26
Vocational home economics	24
Scientific or technical	8
Agriculture	3

from one to six, with a pronounced mode of three. Of the eighty-two schools offering three curriculums, sixty-five offer the academic, the commercial, and the general curriculums.

In the inquiry addressed to the principals of these schools in May, 1932, one of the questions was, "For about how many years has the general curriculum been definitely recognized in your school?" Seventy principals made exact replies, a distribution of which is given as Table II. These data convey an impression of the recency of the establishment of the general curriculum. In the evolution of the secondary school it is evident that this modification in the administration of the program of studies is one of the latest steps taken.

To determine the nature of the general curriculum, the writers requested the principals who had reported such a curriculum to submit copies of their programs of studies. From the programs received only those were accepted for analysis which came from schools

having a general curriculum in Grades IX–XII, inclusive. Such a limitation seemed necessary in order that the schools represented might be comparable. The number of schools the programs of which

TABLE II

DISTRIBUTION OF SEVENTY HIGH SCHOOLS ACCORDING TO THE NUMBER OF YEARS DURING WHICH THEY HAVE RECOGNIZED THE GENERAL CURRICULUM

Number of Years	Number of Schools	Number of Years	Number of Schools
2–3	5	18–19	0
4–5	12	20–21	1
6–7	5	22–23	0
8–9	10	24–25	1
10–11	19	26–27	0
12–13	4	28–29	0
14–15	10	30	1
16–17	2	Median	9.3

TABLE III

ACADEMIC SUBJECTS REQUIRED IN THE GENERAL CURRICULUM BY FIFTY-THREE HIGH SCHOOLS

Number of Units Required	Percentage of Schools Requiring Units in—						
	English	Mathematics	History	Other Social Studies	Science	Latin	Modern Foreign Language
0	.....	18.9	.....	20.8	9.4	98.1	98.1
0.5	.....	.....	.....	9.4	.....	.....	.....
1	.....	54.7	5.7	17.0	37.8	.....	.....
1.5	.....	.....	.....	24.5	.....	.....	.....
2	.....	22.6	50.9	26.4	50.9	1.9	1.9
2.5	.....	1.9	22.6	.....	.....	.....	.....
3	.....	1.9	13.2	1.9	.....	.....	.....
3.5	3.8	.....	3.8	.....	.....	.....	.....
4	96.2	.....	3.8	.....	1.9	.....	.....

were thus available was fifty-three. In Table III are shown the academic subjects which these schools require of a pupil following the general curriculum. The percentages of schools stipulating the various numbers of units show practical agreement on four units of English and no modern or ancient foreign language. In the other

subject fields the schools vary considerably, but a majority require one unit of mathematics, two of history, and two of science. The median practice for "Other social studies" is to require one and one-half units. The total number of units thus indicated by modal and median practice is ten and one-half. Requirements in other than these academic fields seldom exist except in such non-credit or partial-credit subjects as music and health education.

Table III signifies release from the older disciplinary subjects which formerly constituted the core of the secondary-school program and which still figure heavily in the entrance requirements of some higher institutions, especially colleges in the East. It may be said also that the general curriculum means freedom from the compulsions of any narrowly utilitarian sequence of subjects. On the positive side, the general curriculum emphasizes orientation in society, some degree of orientation in one's natural world, training in the vernacular, and an acquaintanceship with our literary heritage. The permission of a large number of elective units implies an opportunity for exploration and for gratification of individual interests in specialization.

ENROLMENT IN THE GENERAL CURRICULUM

As already indicated, the Classification Reports of Secondary Schools of Pennsylvania were made available to the writers through the courtesy of the State Department of Public Instruction. The data on enrolment were analyzed for the light they might shed on the number of pupils served by the general curriculum. First of these analyses is the distribution shown in Table IV. Ten of the 112 schools offering a general curriculum were not included in this tabulation because it was considered desirable to compare only the schools which have a general curriculum and two or more other curriculums. Such a restriction made it certain that the percentage of pupils pursuing the general curriculum in any school would not be unduly inflated through lack of opportunity to pursue other curriculums. The table shows wide variation among the schools in the percentage of pupils enrolled in the general curriculum. Conceivably, the administration and character of the various curriculums, the character of the student body, the traditions of the school, and a host of

other factors account for this variation. The summary at the foot of the table shows that in the median school nearly a fourth of the pupils are enrolled in the general curriculum.

To make valid comparisons of the enrolments by grade and by sex within the general curriculum and to compare enrolments in the several curriculums necessitated close restriction of the schools included. Consequently, only those schools offering academic, commercial, and general curriculums were used. Since some schools did not offer all

TABLE IV

DISTRIBUTION OF 102 SCHOOLS ACCORDING TO PERCENTAGE OF PUPILS ENROLLED IN THE GENERAL CURRICULUM

Percentage of Pupils Enrolled in General Curriculum	Number of Schools	Percentage of Pupils Enrolled in General Curriculum	Number of Schools
55–59	2	15–19	19
50–54	1	10–14	9
45–49	4	5–9	12
40–44	8	0–4	3
35–39	6		
30–34	13	Third quartile	33.27
25–29	15	Median	24.00
20–24	10	First quartile	15.40

three curriculums in Grades IX and X, such schools were excluded from the tabulations for those grades. Thus, the numbers of schools compared are 47 in Grade IX, 54 in Grade X, and 62 in Grades XI and XII. The medians and the quartiles of the distributions of the schools according to the percentage of the pupils of each grade enrolled in the general curriculum are shown in Table V. The percentage of boys following that curriculum is much larger than the similar percentage of girls, more than twice as large when the medians for all grades are considered. The medians for the boys show no certain trend from Grade IX to Grade XII, although after a loss in Grade X there are gains in both the last two grades. For girls the medians increase steadily, rising from 12 per cent in Grade IX to 20 per cent in Grade XII.

The percentages of the pupils following the three curriculums in each of the high-school years are compared in Table VI. The percentage of boys in the general curriculum drops considerably from

Grade IX to Grade X, both the academic and the commercial curriculums sharing in the complementary gain. Both Grades XI and XII show a marked rise in the proportion of boys who are in the general curriculum, approximately three-eighths graduating in that

TABLE V

SUMMARIES OF DISTRIBUTIONS OF SCHOOLS ACCORDING TO PERCENTAGE OF BOYS AND OF GIRLS OF EACH GRADE ENROLLED IN THE GENERAL CURRICULUM

Measure	Grade IX (47 Schools)	Grade X (54 Schools)	Grade XI (62 Schools)	Grade XII (62 Schools)	All Grades
Boys:					
Third quartile	48.12	40.42	50.83	50.62	46.56
Median	32.50	26.50	31.67	34.17	30.60
First quartile	16.88	13.50	16.87	21.42	17.37
Girls:					
Third quartile	25.21	19.72	29.17	32.50	27.44
Median	12.19	12.92	16.54	20.00	14.93
First quartile	5.88	7.05	8.93	8.61	7.47

TABLE VI

PERCENTAGE DISTRIBUTION OF BOYS AND GIRLS IN EACH GRADE ACCORDING TO CURRICULUMS PURSUED

Curriculum	Grade IX (47 Schools)	Grade X (54 Schools)	Grade XI (62 Schools)	Grade XII (62 Schools)
Boys:				
Academic	39.97	43.01	43.46	42.17
General	32.93	27.43	33.81	37.13
Commercial	27.10	29.56	22.73	20.70
Total	100.00	100.00	100.00	100.00
Girls:				
Academic	33.54	36.50	35.32	32.47
General	15.66	14.41	19.71	24.38
Commercial	50.80	49.09	44.97	43.15
Total	100.00	100.00	100.00	100.00

curriculum. The shift is almost entirely at the expense of the commercial curriculum. The percentage of girls following the general curriculum recedes slightly in Grade X but gains notably in both Grades XI and XII, at the expense of both the academic and the commercial curriculums. One might speculate on the causes for

these shifts, but the following section of this article offers concrete evidence which serves to give a basis for interpretation.

HOW PRINCIPALS USE THE GENERAL CURRICULUM

In order to discover how the general curriculum is used, the writers addressed an inquiry to the principals of the schools offering such a curriculum and two or more other curriculums. The inquiry was in the form of a three-part check list of practices in counseling pupils with reference to the general curriculum. The items of the check list are given in Table VII. They are conditions or circumstances under which pupils are advised to elect the general curriculum when they enter Grade IX, to change to the general curriculum from some other curriculum, and to change from the general curriculum to one of the other curriculums. Preliminary inquiry, as well as the data concerning shifts in enrolment, made it evident that the second and the third parts of the check list, which were concerned with *changes* of curriculum, were essential to a full exposition of the field of inquiry. The items of the check list were derived by asking several principals and counselors to canvass the rolls of their schools and list the conditions or circumstances which had led them to advise individual pupils to elect the general curriculum or to change to it or from it during their school careers. The check lists were accompanied by directions to check twice each condition or circumstance applying with some frequency in the principal's school, to check once those conditions applying occasionally, to leave blank those that seemed never to arise, and to add new ones as needed. The items of the check list were arranged in random order. Usable replies were received from eighty-four principals.

The results of this canvass, given in Table VII, are worthy of some study. One is first impressed with the negative character of many of the circumstances which principals indicate. Circumstances in which the more specific curriculums require subjects, such as foreign language and mathematics, which are deemed too difficult or out of the range of the pupil's interests are among the more frequently checked reasons. Of the conditions which cause the principal to advise the pupil to change to the general curriculum, the following was checked by all but two of the principals: "Lack of capacity for some of the

TABLE VII

PERCENTAGES OF PRINCIPALS WHO CHECKED VARIOUS CONDITIONS OR CIRCUMSTANCES UNDER WHICH PUPILS ARE ADVISED TO ELECT THE GENERAL CURRICULUM WHEN ENTERING GRADE IX, TO TRANSFER TO THE GENERAL CURRICULUM, AND TO TRANSFER FROM THE GENERAL CURRICULUM

Condition or Circumstance Influencing Advice to Pupil	Applied with Some Frequency	Applied Occasionally	Total
Check List A—Electing the General Curriculum:			
1. Foreign-language requirement in other curriculums presents an objection	41.7	44.0	85.7
2. The pupil is of low intelligence	38.1	39.3	77.4
3. The pupil does not know whether he will continue his schooling beyond high school	45.2	32.1	77.3
4. The pupil does not expect to continue in high school until completion or graduation	28.6	45.2	73.8
5. The pupil has no vocational preference	33.3	39.3	72.6
6. Flexibility of general curriculum enables pupil to transfer later if desirable or necessary	36.9	34.5	71.4
7. None of the other curriculums is suitable to the pupil's aims or interests	33.3	36.9	70.2
8. Mathematics requirement in other curriculums presents an objection	26.2	38.1	64.3
9. The other curriculums are too difficult throughout	29.8	32.1	61.9
10. The pupil enters school from another district	9.5	44.0	53.5
11. The pupil intends to enter college but does not have definite plans as to college course	10.7	22.6	33.3
12. The pupil plans to attend a normal school	8.3	17.9	26.2
13. The pupil plans to follow an engineering or technical course in college	11.9	8.3	20.2
Check List B—Transferring to the General Curriculum:			
1. Lack of capacity for some of the regular subjects of a curriculum	56.0	41.7	97.7
2. Change of educational plans	22.6	52.4	75.0
3. Lack of interest in some of the required subjects of a curriculum	20.2	50.0	70.2
4. Change of vocational plans	14.3	54.8	69.1
5. To correct an ill-advised selection	9.5	51.2	60.7
Check List C—Transferring from the General Curriculum:			
1. Change of educational plans	38.1	45.2	83.3
2. Pupil acquires a vocational ambition which one of the other curriculums will help him to realize	27.4	52.4	79.8
3. Pupil demonstrates a mental ability equal to a more enriched offering than that presented in the general curriculum	11.9	47.6	59.5
4. Pupil finds an interest in some field of learning which causes him to desire to complete the sequence of studies set up in some curriculum other than the general curriculum	14.3	40.5	54.8

regular subjects of a curriculum." These negative reasons suggest that the general curriculum is a "dumping ground," that it accommodates the pupils who formerly were thoughtlessly eliminated from the school.

More positive values of the general curriculum, however, are clearly evident. Standing third in Check List A is the statement: "The pupil does not know whether he will continue his schooling beyond high school." Fifth and sixth in this list are items of similar import. These items indicate that the general curriculum affords educational opportunity to the pupil who has not yet made educational and vocational choices, such as the more specific curriculums imply. The possible outcomes of such opportunity are significantly shown in all items of Check List C. The value to which they point is that of *exploration*. Apparently, many high-school pupils feel the need of exploratory experiences before making choices of vocation and education. The items of Check List B also indicate plainly that pupils in the specific curriculums are exploring—often with negative results.

Another set of positive values of the general curriculum is in evidence. Items 4, 7, 11, 12, and 13 in Check List A imply that the pupil has a more or less specific developmental goal for the attainment of which he follows the general curriculum. The second and the third conditions named in Check List B also fall in this category.

From the data shown in Table VII it must inevitably be concluded that principals put the general curriculum to an extraordinarily wide range of uses. They must depend on the general curriculum as an adjustive instrument of the first order, enabling them to administer education to heterogeneous student bodies and to show a measure of regard for the ideal of providing democratic secondary education.

SUMMARY AND CONCLUDING COMMENT

On the basis of the data presented, the following items of fact stand forth: (1) The general curriculum ranks third in frequency of appearance, being outnumbered by the academic and the commercial curriculums. (2) The general curriculum is of recent origin. (3) While the subjects required for the general curriculum vary with

different high schools, the practically unanimous practice is to require no foreign language, and most schools require no more than one unit of mathematics. (4) About a quarter of the pupils in the high schools studied are enrolled in the general curriculum, the proportion of boys being somewhat larger than the proportion of girls. The proportions of both sexes enrolled in the general curriculum increase from Grade IX to Grade XII. (5) Lack of capacity for, or interest in, some required subjects of the more specialized curriculums is the reason given most frequently by principals for advising pupils to enter the general curriculum or to transfer to it. The pupil's uncertainty with respect to vocational and educational plans is a second category of reasons for advising the general curriculum. A third group of reasons are those growing out of a pupil's definite plans for the realization of which the general curriculum gives him the best opportunity.

The essential meaning of these facts is that in the general curriculum there has been developed an effective instrument for educational democratization. To the high-school program of studies it contributes pliancy and adaptability—attributes which are essential to the recognition of individual differences. The school which has none but specialized curriculums, even though such curriculums include elective opportunities, cannot offer the varied possibilities in education which are demanded by pupil differences and by social need. Increasing sensitivity to the variation in interests, abilities, and ambitions of pupils, coupled with the demand for universal secondary education, has evolved the general curriculum.

Educational democratization is further promoted by the opportunity for *exploration* which the general curriculum affords. By accommodating those pupils who enter high school without educational and vocational plans and by serving as a refuge for those who have made a mistake in electing one of the specialized curriculums, the general curriculum performs an important exploratory function. That provisions for exploration must be made in the senior high school and the four-year high school is patent to those who have studied the literature of interests. Frequently the pupil of fourteen or fifteen years does not know himself; he is not yet capable of mak-

ing a valid choice among specialized curriculums. Helping him to find his interests and his potentialities is as significant a service in a democratic school system as is the provision of varied opportunity for development.

It is time that the possibilities and the meaning of the general curriculum be given more careful thought. There is some evidence that it has been created as a makeshift device to meet the overwhelming pressure of democracy for educational advantage. In all probability, it represents but one step in the evolution of a truly democratic school system. If such evolution is unplanned and wasteful, we are challenged to define the goals of our activity in order that change may be rational. In reconstructing the program of studies so that progress may be made in the realization of our ideals, valuable lessons may be learned from our experience with the general curriculum.

THE SOCIAL COMPOSITION OF THE CWES JUNIOR COLLEGE IN CHICAGO

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Various studies of the social composition of junior colleges have been made, and the writer was interested to see how the population of the junior college organized in Chicago under the Civil Works Educational Service on January 2, 1934, would compare with similar schools maintained on a permanent basis. The college, which the writer formerly served as dean, was supported through funds obtained from the federal government to care for persons not able to attend college elsewhere. The closing of Crane Junior College by the Chicago Board of Education in July, 1933 (the only public junior college in the city at that time), had created a need for such an undertaking.

Data were collected in May, 1934, and, with minor modifications, the form was similar to that used by Counts in his investigation of the high-school population of four cities.[1] These data represent returns from 376 students, 208 of whom attended a "downtown" college using quarters secured through the courtesy of the University of Chicago at 18 South Michigan Avenue and 168 of whom attended a college on the West Side of the city in quarters supplied through the courtesy of Lewis Institute. The data were secured from 216 men and 160 women.

INFORMATION ABOUT THE STUDENTS

Information on the ages of the students and the languages spoken in the homes is given in Tables I and II. Table I shows that 240, or 64 per cent, of those reporting were under the age of twenty years. More than one language was spoken in 158, or 42 per cent, of the

[1] George Sylvester Counts, *The Selective Character of American Secondary Education*. Supplementary Educational Monographs, No. 19. Chicago: Department of Education, University of Chicago, 1922.

homes. Yiddish, Polish, and German were the languages used by 55 per cent of those speaking languages other than English.

To the question, "Do you have regular work outside of college hours by which you contribute to your own support?" 78 students, or 21 per cent of the total, replied in the affirmative. Of this number,

TABLE I

DISTRIBUTION OF 376 STUDENTS IN CWES JUNIOR COLLEGE, CHICAGO, ACCORDING TO CHRONOLOGICAL AGE

Age	Number of Students	Age	Number of Students
Under 18	46	22	21
18	97	23–24	17
19	97	25 or over	30
20	46		
21	22	Total	376

TABLE II

LANGUAGES SPOKEN IN THE HOMES OF 376 STUDENTS IN CWES JUNIOR COLLEGE, CHICAGO

Language	Number of Students	Language	Number of Students
English	361	French	7
Yiddish	50	Swedish	7
Polish	22	Roumanian	6
German	15	Lithuanian	6
Bohemian	11	Russian	5
Italian	10	Other languages	19

37 students indicated that they worked less than 20 hours a week; 16 worked 20–30 hours; 10 students, 31–40 hours; 3 students, 41–50 hours, and 2 students, 51–60 hours. Ten students, while answering the question affirmatively, did not state the number of hours worked.

INFORMATION ABOUT THE FATHERS OF THE STUDENTS

One of the questions asked whether the pupil's father was living. This question was answered in the affirmative by 321 students, while 55 replied in the negative. Fewer than half of the fathers (46 per cent) were born in this country. The birthplaces of the fathers born in foreign countries are shown in Table III. More than half

of those represented in this table were born in Russia, Poland, and Italy. A considerable proportion of those born in Russia and Poland are probably of the Jewish race.

Eighty-one, or 25 per cent of the fathers living, were not employed at the time the data were gathered. Of 365 answering the question, 119 reported their fathers to be owners or part owners of the businesses in which they worked or had worked, while 246 were reported

TABLE III

DISTRIBUTION OF 202 FOREIGN-BORN FATHERS ACCORDING TO COUNTRY OF BIRTH

Country of Birth	Number of Fathers	Country of Birth	Number of Fathers
Russia	56	Germany	9
Poland	34	Austria	8
Italy	15	Ireland	7
Lithuania	14	Roumania	6
Czechoslovakia	13	Other countries*	30
Sweden	10	Total	202

* In this category are included countries in which five or fewer of the fathers were born.

to have no interest in the business. One hundred and twenty-two fathers of 354 students answering the question were reported to have titles such as "foreman," "boss," and the like, while 232 held no titles.

The occupations in which the fathers were engaged when working are shown separately in Table IV for students attending at 18 South Michigan Avenue and those attending at Lewis Institute. The data reveal a rather remarkable difference in the social composition of the personnel of the two Chicago schools. If the first seven occupations listed in the table are considered to comprise the "white-collar" class, representatives of this class made up 53.9 per cent of the total enrolment at 18 South Michigan Avenue, while they constituted only 40.5 per cent of the enrolment at Lewis Institute. Students at the former school were drawn from the North and the South Sides of the city, while those at Lewis Institute came from the West Side, which is composed, on the whole, of a less prosperous class of people. It may be noted, however, that artisan-proprietors,

who constitute what might be called the dividing line between the "white-collar" and the laboring groups, made up the largest single percentage in each school.

TABLE IV

DISTRIBUTION OF 376 STUDENTS IN TWO DIVISIONS OF CWES JUNIOR COLLEGE, CHICAGO, ACCORDING TO OCCUPATIONS OF THEIR FATHERS

Occupation	Fathers of Students at 18 South Michigan		Fathers of Students at Lewis Institute		Fathers of All Students	
	Number	Per Cent	Number	Per Cent	Number	Per Cent
Proprietary	9	4.3	3	1.8	12	3.2
Professional	24	11.5	10	5.9	34	9.0
Managerial	22	10.6	8	4.8	30	8.0
Commercial	12	5.8	17	10.1	29	7.7
Clerical	7	3.4	4	2.4	11	2.9
Agricultural	7	3.4	5	3.0	12	3.2
Artisan-proprietary	31	14.9	21	12.5	52	13.8
Building and related trades	17	8.2	18	10.7	35	9.3
Machine and related trades	8	3.9	14	8.3	22	5.9
Printing	3	1.4	6	3.6	9	2.4
Miscellaneous trades	19	9.1	25	14.9	44	11.7
Transportation service	16	7.7	6	3.6	22	5.9
Public service	4	1.8	6	3.6	10	2.7
Personal service	11	5.3	10	5.9	21	5.6
Miners, lumbermen, etc.	1	0.5	1	0.6	2	0.5
Common labor	8	3.9	8	4.7	16	4.2
Unknown	9	4.3	6	3.6	15	4.0
Total	208	100.0	168	100.0	376	100.0

RESULTS COMPARED WITH THOSE FROM OTHER STUDIES

A comparison of the occupations of the fathers of students attending the CWES Junior College with the occupations found in other studies of a similar nature is presented in Table V. The data reported by Reynolds in 1927 were secured in a study of 6,104 college and university students; those reported by Koos in 1925 were secured in a study of 1,062 public junior college students; and those reported by Anderson in 1934 were secured in a study of 8,330 public junior college students. Anderson's study was, for the most part, confined to students in California, while the other two investigations report data for schools more widely scattered.

The comparative results are significant. The tabulations made by Reynolds, Koos, and Anderson, compared with the data of the present study, show that the representation of the upper occupational groups was much smaller among the CWES student body than among the other student bodies. For example, in the other

TABLE V

PERCENTAGE DISTRIBUTION OF CHICAGO CWES JUNIOR COLLEGE STUDENTS ACCORDING TO OCCUPATIONS OF FATHERS COMPARED WITH SIMILAR DISTRIBUTIONS IN OTHER STUDIES

Occupation	CWES Junior College	Colleges and Universities (Reynolds)*	Public Junior Colleges (Koos)†	Public Junior Colleges (Anderson)‡
Proprietary	3.2	24.2	19.1	12.8
Professional	9.0	18.4	14.0	12.7
Managerial	8.0	10.2	16.3	11.3
Commercial	7.7	7.0	9.3	9.2
Clerical	2.9	2.1	3.8	3.5
Agricultural	3.2	23.3	14.2	16.5
Artisan-proprietary	13.8	1.4	2.8	1.6
Manual labor	48.2	11.6	15.6	22.9
Unknown	4.0	1.8	4.9	9.5
Upper levels	47.8	86.6	79.5	67.6
Lower levels	48.2	11.6	15.6	22.9

* O. Edgar Reynolds, *The Social and Economic Status of College Students*, p. 14. Teachers College Contributions to Education, No. 272. New York: Teachers College, Columbia University, 1927.

† Leonard V. Koos, *The Junior-College Movement*, p. 158. Boston: Ginn & Co., 1925.

‡ H. Dewey Anderson, "Whose Children Attend Junior College?" *Junior College Journal*, IV (January, 1934), 168.

three studies the percentages of students coming from the proprietary class were 24.2, 19.1, and 12.8, while only 3.2 per cent of the students in the CWES Junior College came from this group.

Attention may be called to the "artisan-proprietors," who usually, with the assistance of the remainder of the family, run the entire business establishment. While only 1.4, 2.8, and 1.6 per cent of the students in the other three studies came from this group, this class constituted 13.8 per cent of the students in the present study.

The showing of the laboring classes is no less striking. A far larger percentage of pupils from these classes was found in the CWES Junior College, 48.2 per cent of the whole group in the present study compared with the percentages of 11.6, 15.6, and 22.9, respectively in the other three studies.

These results are not surprising when it is borne in mind that the CWES Junior College was established by the federal government to care for students not able to secure education elsewhere at the level of the first two years of college. We should expect the percentage of such students coming from the "white-collar" class to be smaller than the similar percentage of students in other junior colleges. Parents from this group, even though embarrassed financially, have planned for years, to a greater extent than have the laboring class, for the education of their children and will make greater sacrifices to see that the education is secured. The large number of homes in which foreign languages are spoken indicates that parents coming from other countries have realized the advantages to be secured from higher education.

SUMMARY OF FINDINGS

The following paragraph gives a summary of the findings of this study of the social composition of the CWES Junior College in Chicago.

(1) More than half of the fathers in this study were born outside the United States. (2) A full fifth of the total number of students attending the CWES Junior College were also engaged in work for which they received pay. (3) A quarter of the fathers who were living were not working at the time the data were secured. (4) While almost a third of those reporting claimed that their fathers were owners or part owners of the businesses in which they worked, almost half were of the manual-labor group. (5) The percentage of students from the seven "white-collar" groups represented is smaller at Lewis Institute than at the downtown college in all cases but one. (6) The representation of the manual-labor groups in the CWES Junior College is much larger than the representation of this group in the studies reported by Reynolds, Koos, and Anderson.

The conclusion seems justified that the CWES schools provided educational opportunities at the junior-college level for persons who otherwise would not have been able to secure such opportunities.

FORECASTING MARKS OF NEW PLAN STUDENTS AT THE UNIVERSITY OF CHICAGO

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FINDINGS OF EARLIER STUDIES AND NEED FOR REINVESTIGATION

General studies.—A number of studies concerned with the prediction of achievement in college have isolated three factors which seem to show a more consistent significant relation to success in college than any other predictive measures studied, namely, rank in high-school graduating class, average high-school mark, and score on a scholastic-aptitude test. In Douglass' study[1] the average high-school mark seemed to be the best predictive measure of college success, but Johnston,[2] Henmon and Holt,[3] and Goldthorpe[4] give data which indicate that average rank in high-school class is the best of the three measures for predicting college achievement.

Studies at the University of Chicago.—The predictive efficiency of the three measures varies considerably from institution to institution, partly because of factors related to the measures themselves and to the measuring process and partly because of conditions within the institutions. The results of previous studies made at the University of Chicago are briefly reported here. Between high-school marks and university-grade points, Scates reports a coefficient of

[1] Harl R. Douglass, *The Relation of High-School Preparation and Certain Other Factors to Academic Success at the University of Oregon*, pp. 15–21, 48. University of Oregon Publication, Education Series, Vol. III, No. 1. Eugene, Oregon: University of Oregon Press, 1931.

[2] J. B. Johnston, "Predicting Success or Failure in College at the Time of Entrance," *School and Society*, XX (July 5, 1924), 31.

[3] V. A. C. Henmon and F. O. Holt, *A Report on the Administration of Scholastic Aptitude Tests to 34,000 High School Seniors in Wisconsin in 1929 and 1930*, p. 57. Bulletin of the University of Wisconsin, Serial No. 1786, General Series No. 1570. Madison, Wisconsin: Bureau of Guidance and Records, University of Wisconsin, 1931.

[4] J. Harold Goldthorpe, "The Relative Rank in High School and in the First Two Years of the University," *School and Society*, XXX (July 27, 1929), 132.

.56,[1] and Potthoff coefficients of .60 and .62. Between psychological-test scores and college-grade points, Potthoff found two coefficients of .501 and .435,[2] and Thurstone reports one of .54.[3] Holzinger reports an average coefficient of .393 between psychological-test percentiles and college achievement and a correlation of .416 between high-school marks and college success.[4] These correlations are comparable to those reported in the more general studies cited. Although the University of Chicago is using rank in high school as one of its admission standards, no objective evidence showing the efficiency of that measure in forecasting student achievement in the University has been published. Especially, there seems to be no support in terms of large correlation coefficients for the somewhat prevailing belief that rank in high-school class is a better predictive measure than average mark in high school.

Necessity for reinvestigation.—The inauguration of the New Plan at the University of Chicago so changed conditions under which former studies had been made that the problem of predicting student achievement became, by necessity, a subject for reinvestigation. In the New Plan the credit-point-hour ratio has been replaced by marks or percentile ranks on seven comprehensive achievement examinations: four in the general introductory courses, two in divisional sequence courses, and one in English. The checkerboard arrangement of departmental courses has been replaced by general introductory courses, a year in length, in four fields of knowledge: the biological sciences, the humanities, the physical sciences, and the social sciences. The former course-by-course progression has been abandoned in favor of progress at the student's own rate.

[1] Douglas Edgar Scates, "Selective Admission and Selective Retention of College Students at the University of Chicago," p. 124. Unpublished Doctor's thesis, Department of Education, University of Chicago, 1926.

[2] Edward Frederick Potthoff, "A Statistical and Analytical Study of the Selective Admission of College Students," pp. 79, 94. Unpublished Doctor's thesis, Department of Education, University of Chicago, 1928.

[3] L. L. Thurstone, "Psychological Tests for College Freshmen," *Educational Record*, VI (October, 1925), 294.

[4] K. J. Holzinger, "The Value of Standardized Tests for Predicting Undergraduate Scholarship," *Admission and Retention of University Students*, pp. 308, 311. University of Chicago Survey, Vol. V. Chicago: University of Chicago Press, 1933.

DATA ON WHICH REINVESTIGATION IS BASED

Predictive measures.—From the blank on which application for admission to the University is made, the student's rank in his high-school graduating class was secured. The absolute rank was converted into a percentile rank, which then was correlated with the numerical values of the letter marks on the comprehensive examinations in the four general introductory courses. As a second variable for prediction purposes, average marks in high school were used. The correlations between these marks and the raw scores on the four comprehensive examinations were computed and furnished by the Board of Examinations. High-school marks in the academic subjects only were used, after they had been equated to offset the variability in the marking schemes of the various high schools. The third variable consisted in the student's percentile on the Psychological Examination for High-School Graduates and College Freshmen, published by the American Council on Education. Zero-order correlation coefficients between the Psychological Examination scores and the raw scores on the four comprehensive examinations were taken from a report of the Board of Examinations.[1]

Predicted measures.—Based on these three initial factors—rank in high-school class, average high-school mark, and score on the American Council Psychological Examination—the students' marks on the comprehensive examinations in the four fields were predicted.

RESULTS OF REINVESTIGATION

Zero-order correlations and intercorrelations.—A summary of all zero-order correlations between the initial measures and the marks on the comprehensive examinations and the necessary intercorrelations between the seven variables is presented in Table I. In all, twenty-one correlations are shown. The correlations of the three initial measures with marks on the comprehensive examinations show clearly that scores on the Psychological Examination yield higher correlations than do either marks in high school or rank in high-school class. As a matter of fact, the order of predictive efficiency found in previous studies is completely reversed. The Psycho-

[1] L. L. Thurstone and Staff, "Report of New Plan Examinations for the Period 1931–1933." Chicago: Board of Examinations, University of Chicago, December, 1933.

logical Examination is followed by marks in high school, the lowest correlations being found between rank in high-school class and marks on the comprehensive examinations. When an approximate average correlation between marks in the comprehensive examinations and each of the three predictive measures is computed by weighting the individual coefficients by the number of cases, the following coefficients are found: rank in high-school class, .43; average

TABLE I

SUMMARY OF INTERCORRELATIONS BETWEEN ALL FACTORS

Variable	Rank in High-School Class	Average High-School Mark	Psychological Examination	Mark in Biological Sciences	Mark in Humanities	Mark in Physical Sciences	Mark in Social Sciences
1. Rank in high-school class	.....	.72	.27	.46	.34	.52	.45
2. Average high-school mark	.72	.....	.34	.52	.46	.49	.52
3. Psychological Examination	.27	.34	.....	.49	.64	.58	.52
4. Mark in biological sciences	.46	.52	.49	.....	.73	.86	.77
5. Mark in humanities	.34	.46	.64	.73	.....	.72	.84
6. Mark in physical sciences	.52	.49	.58	.86	.72	.....	.71
7. Mark in social sciences	.45	.52	.52	.77	.84	.71	.....

mark in high school, .50; and score on the Psychological Examination, .56. The relative efficiency of forecasting the standing on the comprehensive examinations by means of these coefficients can be expressed by the formula, $E = 1 - \sqrt{1 - r^2}$, where E equals the percentage of improvement in the prediction over that made by merely assigning to each student the average mark as his most probable success in the comprehensive examinations.[1] Taken alone, the Psychological Examination score is 76.44 per cent more efficient than is rank in high-school class and 28.95 per cent better than is the average mark in high school, while mark in high school is 36.83 per cent better than is rank in high-school class.

Combinations of measures.—The three variables—rank in high-school class, average high-school mark, and Psychological Examina-

[1] Clark L. Hull, *Aptitude Testing*, p. 268. Yonkers-on-Hudson, New York: World Book Co., 1928.

tion score—can be combined in four ways to predict success in comprehensive examinations: (1) rank in high-school class and average mark in high school; (2) rank in high-school class and Psychological Examination score; (3) average mark in high school and Psychological Examination score; and (4) a combination of all three. The forecasting efficiency of the various combinations can again be computed from the multiple-correlation coefficients which these combinations yield with the marks in the comprehensive examinations. The results of these computations, the various multiple-correlation coefficients, together with their respective forecasting efficiencies, are summarized in Table II.

The relatively small size of the zero-order coefficients may be explained by various factors, such as low reliability and validity of the measures correlated, non-normality of their distributions, nonlinearity of regression lines, certain conditions of sampling, and, last but not least, the fact that there is not a higher intrinsic relation between marks in the comprehensive examinations and high-school ranks, high-school marks, and intelligence scores than is indicated by the size of the coefficients.

Little need be said with regard to the reliability and the validity of the measures used for prediction. The reliability of teachers' marks, as has often been demonstrated, is relatively low (between .7 and .8 on the average). Specific reliability coefficients with reference to the Chicago situation are not available. However, besides the usual factors of intra-institutional variability of standards of marking, which reduce the reliability of such measures, there is an additional factor operating at the University of Chicago (and probably at any other college) which seems to reduce to an even greater extent the reliability of high-school ranks and marks, namely, the inter-institutional variability of these measures. In terms of a measure relatively free of inter–high-school variability, the writer has shown that some public high schools in Chicago mark too low by as much as 10 grade points and that others mark too high by as much as 19 points.[1] What one high school calls a percentile rank of

[1] Wilhelm Reitz, "A Method of Adjusting School Marks and Class Ranks To Compensate for Variations in Standards of Marking," *Bulletin of the American Association of Collegiate Registrars*, IX (October, 1933), 1–14.

TABLE II

ZERO-ORDER AND MULTIPLE-CORRELATION COEFFICIENTS OF THREE PREDICTIVE MEASURES AND MARKS IN COMPREHENSIVE EXAMINATIONS IN FOUR FIELDS

Predictive Measure and Field with Which Correlated	Number of Cases	Correlation	Percentage of Efficiency in Prediction
Rank in high-school class:			
Biological sciences	367	.46	11.21
Humanities	408	.34	5.96
Physical sciences	202	.52	14.58
Social sciences	384	.45	10.70
Weighted average		.43	9.72
Average high-school mark:			
Biological sciences	332	.52	14.58
Humanities	362	.46	11.21
Physical sciences	168	.49	12.83
Social sciences	339	.52	14.58
Weighted average		.50	13.30
Psychological Examination score:			
Biological sciences	364	.49	12.83
Humanities	384	.64	23.16
Physical sciences	190	.58	18.54
Social sciences	379	.52	14.58
Weighted average		.56	17.15
High-school rank and average high-school mark combined:			
Biological sciences		.53	15.20
Humanities		.46	11.21
Physical sciences		.55	16.48
Social sciences		.53	15.20
Weighted average		.51	13.83
High-school rank and Psychological Examination score combined:			
Biological sciences		.60	20.00
Humanities		.66	24.87
Physical sciences		.69	27.62
Social sciences		.61	20.76
Weighted average		.63	22.34
Average high-school mark and Psychological Examination score combined:			
Biological sciences		.62	21.54
Humanities		.69	27.62
Physical sciences		.66	24.87
Social sciences		.64	23.16
Weighted average		.65	24.01
High-school rank, average high-school mark, and Psychological Examination score combined:			
Biological sciences		.63	22.34
Humanities		.69	27.62
Physical sciences		.70	28.59
Social sciences		.64	23.16
Weighted average		.66	24.87

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Weighted average		.66	24.87

50 may, as shown in the same study, be equivalent to a percentile rank of 93 or 19 in other schools. This effect of inter–high-school variability of ranks and marks can be eliminated, as has been shown in another study by the writer.[1]

Non-linearity is another factor which, especially in the case of ranks, makes for lower correlations, as the Blakeman test shows for the present data. The largest percentage (38.4) of the ranks pile up in the top tenth of the distribution, with a slump in the ninth tenth (15.4 per cent), which is followed by rapidly diminishing frequencies in the lower tenths. A correction for this situation has been suggested by the writer in the previously cited studies. Additional evidence of the lowering of all correlations involving rank in high-school class is seen in the reversal of the association between marks in the comprehensive examinations and rank in high-school class below the fiftieth percentile, that is, for students ranking in the lower half of their graduating class. The writer has found, from unpublished data which are not included here, that cases below the fiftieth percentile rank show a persistent negative correlation with marks in the comprehensive examinations. An explanation of this result may be found in the fact that students who are admitted to the University from the lower half of their graduating class do slightly better in college, on the average, than might be expected from their rank in class. This situation also can be remedied if the usual percentile ranks are translated into scores on a hundred-point scale such as Hull[2] suggests.

Another reason why these correlations seem low is that a considerable percentage of students (the approximate average for the four fields is 22.8 per cent) did not take the comprehensive examinations during the first year, although the students were registered in the appropriate courses. This fact naturally produces greater homogeneity in the groups studied, which, in turn, reduces the variability in the measures and the correlations between them. Although several of these attenuating factors may be effectively eliminated and

[1] Wilhelm Reitz, "Predicting College Achievement with Marks and Ranks Adjusted for Inter-High School Variability," *Bulletin of the American Association of Collegiate Registrars*, IX (April, 1934), 162–81.

[2] Clark L. Hull, *op. cit.*, p. 388.

thus higher correlations be found, it is the belief of the writer that the present coefficients are, in general, *as high* as will be obtained with the usual predictive measures.

In the determination of college achievement the factors—rank in high-school class, average high-school mark, and Psychological Examination score—in their best combination will account for not more than 50 per cent of the factors that relate to achievement. The remainder must be accounted for by other factors, such as personality traits, study habits, health, housing conditions in college, and interest. Even then it is likely that an appreciable percentage will be left to be determined by unknown factors.

THE FORECASTING EQUATIONS

Notwithstanding the fact that college achievement never will be predicted completely, the present coefficients lend themselves to the construction of forecasting equations—instruments of prediction which considerably surpass human judgment in this matter.

Multiple-regression equations.—Regression equations may be stated in various forms, depending on the units in which the different measures are expressed. For the present purpose each regression equation will be stated in two forms: in standard form and in score form. The variables will be expressed either in percentile ranks or in original point-scores. Further, regression equations may include one or more independent variables. For the purpose here only equations involving three variables are reported.

It is known that the dispersion of the predicted variable shrinks in proportion to the size of the multiple-correlation coefficient. In order that an estimate of marks on the comprehensive examinations may be of exactly the same range as the original distribution of marks in these examinations, multiple-transfer equations are furnished in addition to the regression equations.

For each of the distributions of letter marks in the four comprehensive examinations administered in June, 1932, centroid values for the different letters were computed, and it was found that, after each mark of F had been adjusted to the numerical value of 1 (in order that calculations with negative numbers might be avoided), the rounded-off numerical values for the various letters in the four

divisions were practically identical. The numerical equivalents of the letter marks are as follows: A = 35, B = 26, C = 17, D = 9, and F = 1.

For each of the four comprehensive examinations only three equations are reported. The coefficients and the constants making up these equations are exhibited in Tables III, IV, and V.

Advantage of the three forms.—The equations in standard form serve primarily to arrive at some other form of equation. If, for instance, any particular variable is expressed in a different scale (for example, in percentile rank rather than in numerical value or vice versa) or if a different mean or sigma is adopted instead of that used in the equations in regression-score form, all new equations can easily be arrived at by way of the standard form. A further advantage accruing from having the equations in standard form is that the various coefficients give an indication of the weight which each factor assumes in the prediction of marks on the comprehensive examinations. Rank in high-school class, for instance, in conjunction with the average high-school mark and the Psychological Examination percentile, receives a weight of −.0104 in the humanities examination; its weight for the examination in the physical sciences, however, is .3246. The fact that these coefficients vary considerably from examination to examination makes it necessary that marks in each of the four examinations be predicted separately.

The equations in transfer form are not true prediction formulas. Their purpose is merely to transfer a student's rank in high-school class, his average high-school mark, and his Psychological Examination percentile—each variable being properly weighted by its own standard deviation—into a composite standing, expressed in a mark on the comprehensive examination. The transfer formulas would be the ideal forecasting instruments if students would maintain in their college work the level indicated by their standings in the three initial measures, that is, if a student of highest percentile rank in his high-school class, with the highest high-school average, and with the highest percentile rank on the Psychological Examination would also obtain the highest marks on the comprehensive examinations. The estimate of these transfer formulas is less probable than that of the true prediction equations. However, for the purpose of eliminating

TABLE III

COEFFICIENTS USED IN EQUATIONS FOR PREDICTING MOST PROBABLE MARKS ON COMPREHENSIVE EXAMINATIONS IN FOUR FIELDS—STANDARD FORM*

Field	Percentile Rank in High-School Class	Average High-School Mark	Psychological Examination Percentile
Biological sciences	.1594	.2863	.3496
Humanities	−.0104	.2814	.5471
Physical sciences	.3246	.1015	.4582
Social sciences	.1369	.2908	.3842

* If all measures are expressed in standard form, that is, as deviations from their mean divided by their respective deviations, the equation for predicting the most probable mark in biological sciences, for example, is:

Most probable mark = (percentile rank in high-school class × .1594) + (average high-school mark × .2863) + (Psychological Examination percentile × .3496).

TABLE IV

COEFFICIENTS AND CONSTANTS USED IN EQUATIONS FOR PREDICTING POTENTIAL MARKS ON COMPREHENSIVE EXAMINATIONS IN FOUR FIELDS—TRANSFER FORM*

Field	Percentile Rank in High-School Class	Average High-School Mark	Psychological Examination Percentile	Constant
Biological sciences	.1546	1.1438	.1935	109.3680
Humanities	−.0080	.9528	.2702	82.5192
Physical sciences	.2681	.3493	.2361	47.3077
Social sciences	.1119	1.0514	.2085	96.3887

* The equation for predicting the potential mark in biological sciences, for example, is:

Potential mark = (percentile rank in high-school class × .1546) + (average high-school mark × 1.1438) + (Psychological Examination percentile × .1935) − 109.3680.

TABLE V

COEFFICIENTS AND CONSTANTS USED IN EQUATIONS FOR PREDICTING MOST PROBABLE MARKS ON COMPREHENSIVE EXAMINATIONS IN FOUR FIELDS—REGRESSION-SCORE FORM*

Field	Percentile Rank in High-School Class	Average High-School Mark	Psychological Examination Percentile	Constant
Biological sciences	.0970	.7176	.1214	62.0418
Humanities	−.0055	.6574	.1864	51.5292
Physical sciences	.1866	.2431	.1643	27.4534
Social sciences	.0719	.6753	.1339	55.5549

* The equation for predicting the most probable mark in biological sciences, for example, is:

Most probable mark = (percentile rank in high-school class × .0970) + (average high-school mark × .7176) + (Psychological Examination percentile × .1214) − 62.0418.

the shrinkage in the range of the predicted variable and for the purpose of indicating a student's potential standing on the comprehensive examinations, they are excellent instruments in conjunction with the true prediction formulas.

The equations in regression-score form are the technical instruments for predicting a student's most probable standing on the comprehensive examinations when his rank in high-school class, average mark in high school, and his standing on the Psychological Examination are known.

How the high-school principal may use equations.—If a high-school principal wants to give a Senior student an estimate of his probable achievement at the University of Chicago and is in a position to determine the student's rank[1] in the Senior class, his average mark[2] in academic subjects on a scale on which 75 is the passing mark, and his score[3] on the 1931 Edition of the American Council Psychological Examination, the principal may use these equations (see Table V) as follows: The student's standing on the biology comprehensive examination (the process is identical for all examinations) may be computed by multiplying the rank by the first coefficient, the mark by the second, and the Psychological Examination percentile by the third. The three products are then added, and the constant in the last column is subtracted from the sum. The resulting answer is the numerical equivalent for the student's most probable mark in the comprehensive examination in the biological sciences.

An actual example will illustrate the procedure. Suppose a Senior has a high-school rank of 100, an average high-school mark of 96,

[1] Suppose a student ranks 25 in a class of 250, then his percentile rank, the measure used in the equations, is $100-\left(\frac{25}{250}\right)100=90$.

[2] A student's average mark may range all the way from 100 down to 70. For the Chicago public high schools letter equivalents are as follows: A=96.9, B=90.6, C=84.4, D=78.1, and F=75.7. The intervals for the letters are as follows: A, 93.75–100; B, 87.50–93.74; C, 81.25–87.49; D, 75.00–81.24; and F, all marks of 74.99 or below.

[3] The gross raw scores obtained on the examination must be translated into percentile ranks pertaining to the 1931 Chicago Freshman class. This translation can be made by the following equivalents: If the midpoints of the score intervals are expressed in percentile ranks, then to the series 75, 85, 95, and so on to 325, the following ranks correspond: 0, 1, 2, 3, 5, 8, 11, 16, 20, 25, 31, 38, 45, 52, 60, 67, 72, 78, 84, 88, 92, 95, 97, 98, 99, 100. Thus, for a raw score between 70–79 (or any lower score) should be substituted 0, a score between 150–59 should be replaced by a percentile rank of 20, a score between 320 and 329 (or any larger score) by 100.

and a percentile on the American Council Psychological Examination of 88, then multiplying these measures with the coefficients for the examination in biological sciences (Table V) and subtracting the constant gives a forecast of 27.22. This result is slightly better than a mark of B.

Suppose the student wants to have an answer to the question of what his mark on the comprehensive examination in the biological sciences would be if it corresponded exactly to his standing in high school—or to a rank of 100, a mark of 96, and a Psychological Examination percentile of 88. When the weights of Table IV for the

TABLE VI

MIDPOINTS AND INTERVAL LIMITS FOR THE INTERPRETATION OF NUMERICAL VALUES OF PREDICTED MARKS ON COMPREHENSIVE EXAMINATIONS IN FOUR FIELDS

Mark	Biological Sciences		Humanities		Physical Sciences		Social Sciences		Average	
	Midpoint	Interval	Midpoint	Interval	Midpoint	Interval	Midpoint	Interval	Midpoint	Interval
F (failure)	1.90	6.71 and under	1.74	6.55 and under	2.00	6.90 and under	1.86	6.74 and under	1.85	6.70 and under
D (passing)	9.37	6.72–11.73	9.20	6.56–11.56	9.59	6.91–11.99	9.42	6.75–11.81	9.36	6.71–11.74
C	17.62	11.74–23.33	17.45	11.57–23.14	17.99	12.00–23.78	17.78	11.82–23.55	17.67	11.75–23.40
B	26.47	23.34–30.30	26.28	23.15–30.11	26.98	23.79–30.87	26.73	23.56–30.61	26.56	23.41–30.42
A	35.02	30.31 and up	34.82	30.12 and up	35.67	30.88 and up	35.38	30.62 and up	35.16	30.43 and up

biology examination are used, the resulting value is 32.92, or a potential mark of low A. In the same manner the marks in the other comprehensive examinations can be obtained. Secured by the use of the regression equation, these are 27.43, 29.00, and 28.24; by the use of the transfer equation, 31.93, 33.81, and 34.08.

A convenient interpretation of these numerical values is found in Table VI. This table contains the midpoints and the upper and the lower interval limits for the various letter marks. Although the original midpoint values for the letter marks F, D, C, B, and A, were 1, 9, 17, 26, and 35, respectively, the actual values vary slightly for each examination. Thus, exact midpoints for the examination in biological sciences turn out to be 1.90, 9.37, 17.62, 26.47, and 35.02, respectively. The average of the four predictions computed in the preceding paragraph is 27.98 by the regression equation or 33.18 by the transfer form. Reference to the column in Table VI giving the

average values shows that this value represents a letter mark of B+ or a potential mark of A−.

At this point a warning should be voiced with regard to the interpretation of the estimates made by the use of the prediction equations. A predicted mark of B justifies the hope of obtaining an actual B, but not more. That an estimated mark is actually obtained is only a likelihood. In reality, a student may make a higher or a lower mark than the estimate indicates because success in college depends on a number of other factors than marks, ranks, and Psychological Examination scores. As a matter of fact, the contribution[1] of other factors in the case of the average of the four estimates is still 56.44 per cent. Moreover, one should keep in mind that the four comprehensive examinations represent only four-sevenths of the total requirements to be fulfilled for the granting of the college certificate. This latter fact, however, is of somewhat minor importance since there is a high intercorrelation between all the examinations; that is, a student obtaining high marks in the four comprehensive examinations is likely to obtain high marks in the other certificate requirements. On the other hand, the likelihood that a student's actual mark will deviate widely from the estimated mark is small. For a student whose estimated mark on a given examination is 1.85, or F, there is about 1 chance in 4 that he may reach the D (passing) interval; 1 in 5 that he may reach the D midpoint; 1 in 9 that he may reach the C interval; 1 in 55, the C midpoint; 1 in 525, the B interval; 1 in 2,100, the B midpoint; 1 in 14,000, the A interval; and 1 in 290,000, that he may reach the midpoint of the A interval. These odds would, of course, decrease considerably if the student could assume that other factors—favorable attitudes, favorable socio-economic, home, and school background, etc.—favor him more than his high-school rank, high-school mark, or Psychological Examination score.

How the Office of Admissions could use the equations.—The use which the Office of Admissions could make of the forecasting equations is chiefly twofold: (1) These equations could serve as a means,

[1] The use of path-coefficient techniques gives the contribution of the unknown factors by the formula $1-R^2$. The multiple R for the foregoing average estimate is approximately .66.

among others, of admitting students to the University and of isolating candidates who in all probability would be poor risks for the University. (2) In applying these equations to those students finally admitted to the University, the Office of Admissions would fulfil a more or less preparatory function, since the resulting forecasts could be used by other University authorities in the counseling and guidance of these students throughout their college careers.

Use of the forecasting devices in the University student-counseling service.—Immediately after Freshman week, when all data with regard to a student's rank in high-school class, average high-school mark, and score on the American Council Psychological Examination are available, the three variable equations may be put to work. The resulting probable marks of students in the four comprehensive examinations may then form an objective basis for the counseling of students. These indices would make it possible to detect not only probable weak students but also probable strong students. Thus, the counseling could be put on a differential basis. Students whose forecasted marks were sufficiently high in some comprehensive examinations could be induced to take those examinations at the earliest possible time, or such a group could be encouraged (as University of Chicago students with extraordinary preparation in certain fields have been advised) to try the examinations without attending the general introductory courses. Students who showed special weaknesses in certain courses could be advised to postpone work in these courses until they had become better oriented and had gained an experience of success in college work while taking courses for which they were more adequately prepared; or, they could be given to understand that their probable success in a particular comprehensive examination was so uncertain that they must exert special effort. The possible usages of these indices are too manifold to be treated adequately here. Perhaps one point may be added. Since the correlation between instructors' quarter marks and marks on the comprehensive examinations is of considerable magnitude (about .70), the quarter marks could be compared with these forecasted marks. Any great discrepancy would indicate that with regard to his college work a student might have developed into a problem case requiring special attention by his adviser.

GENERAL CONCLUSIONS

1. This reinvestigation of the prediction of college achievement has shown that, under the conditions of the New Plan at the University of Chicago, rank in high-school class is the poorest predictive measure among the three variables studied, namely, rank in high-school class, average high-school mark, and Psychological Examination percentile. Scholastic aptitude, as measured by the American Council Psychological Examination, seems to be the best single predictor of marks on the comprehensive examinations. If only two variables are used, a combination of average high-school mark with the Psychological Examination percentile gives the best prediction. Adding rank in high-school class to that combination increases the multiple-correlation coefficient, on an average, from .65 to .66. Under these circumstances, if any curtailment or simplification in the admission process is necessary, rank in high-school class might be dropped as a prerequisite or it might be used in an "adjusted form," as proposed in this study and related studies.

2. The fact that the various predictive measures contribute in different degrees to the determination of success on the comprehensive examinations in the four general introductory courses makes it inadvisable to predict college achievement in the form of a composite index.

3. The relatively low predictive efficiency of rank in high-school class and average high-school mark is attributed to such factors as low reliability and validity of the measures, among which may be especially mentioned the factor of inter–high-school variability of ranks and marks; non-normality of their distributions; non-linearity of regression lines; certain conditions of sampling; and, last but not least, the fact that ranks, marks, and intelligence scores by themselves are not, intrinsically, more closely related to college achievement than is indicated by the size of the present multiple-correlation coefficients. This fact leads to the suggestion, not only that present predictive measures should be improved, but that other and new measures should be found and used in the prediction process.

THE INTELLIGENCE QUOTIENT AND SECONDARY-SCHOOL GUIDANCE

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INTRODUCTION

During the past decade group tests of intelligence have been used extensively in secondary schools as an aid in the classification and adjustment of pupils and in the general appraisal of their abilities.[1] The value of these tests for guidance and individual diagnosis depends on the accuracy with which the test data characterize a person at a given time and on the probability of an equally accurate characterization of the same person at some later time. Mental-test data that permit of one interpretation at one time and of quite another interpretation at some other time have little significance for guidance or diagnosis. Intelligence quotients derived from individual or group test scores have been used extensively as the basis for homogeneous grouping in secondary schools.[2]

It may well be questioned whether guidance and adjustment practices based on intelligence quotients secured from group tests can be justified at the secondary-school level. How significant is the intelligence quotient in the case of secondary-school pupils? The significance of an intelligence quotient for guidance purposes depends on its constancy. "When we say that the I.Q. for an individual remains constant, we mean that the individual maintains the same position with reference to the median individual and other individuals of his group, provided these in turn are constant."[3] This same concept is expressed by Freeman in these words:

[1] Leonard V. Koos and Grayson N. Kefauver, *Guidance in Secondary Schools*, p. 281. New York: Macmillan Co., 1932.

[2] Roy O. Billett, *Provisions for Individual Differences, Marking, and Promotion.* National Survey of Secondary Education Monograph No. 13. United States Office of Education Bulletin No. 17, 1932.

[3] Walter F. Dearborn and Howard H. Long, "On Comparing I.Q.'s at Different Age Levels on the Same Scale," *Journal of Educational Research*, XVIII (November, 1928), 265–74.

> By constancy is here meant that a particular I.Q. shall have the same significance in all the ages to which it is applied. It does not refer to the constancy of the I.Q. of any particular individual. That is another aspect which must be discussed separately. The use of the I.Q. as a measure, however, means that a particular I.Q. shall have the same significance at six years that it has at ten or twelve years. To put it another way, if we should make a distribution of an unselected group of individuals at a series of ages, and should calculate their I.Q.'s, the individuals at corresponding points in the various distributions should have the same I.Q.[1]

These statements are important, and their meaning cannot be ignored by users of group mental tests. Intelligence quotients are valuable data for guidance and adjustment purposes only as long as they remain constant. When they become inconstant, either they become valueless, or they need to be re-interpreted. If the re-interpretation required is involved or ambiguous, confusion and misunderstanding result, and guidance is likely to suffer.

The following study is a report of the inconstancy of intelligence quotients derived from a group test and retest of mental ability administered to secondary-school pupils of varying abilities after an interval of approximately thirty months. The study is also concerned with certain implications of these data for guidance and adjustment practices at the secondary-school level.

DESCRIPTION AND INTERPRETATION OF THE DATA

During the month of May, 1930, the Terman Group Test of Mental Ability, Form A, was administered to the eighth-grade pupils who would present themselves as Freshmen at the Deerfield-Shields Township High School the following September. In October, 1932, Form B of the same test was administered to the members of the Junior class. One hundred and ninety-three of the Juniors who took Form B of the test had taken Form A near the end of Grade VIII, approximately thirty months before. The two sets of test results from these 193 students furnish the data for this study.

The correlation between the intelligence quotients derived from the first and the second tests of these 193 students is $.88 \pm .01$. This correlation compares favorably with those obtained by investigators of Stanford-Binet and group-test intelligence quotients ob-

[1] Frank N. Freeman, *Mental Tests*, p. 276. Boston: Houghton Mifflin Co., 1926.

tained from test and retest.[1] An inspection of the scatter-diagram in Table I shows, however, that a reasonably high correlation between the intelligence quotients on the first and the second tests does not necessarily imply a constancy of the intelligence quotient. A high correlation reveals constancy of intelligence quotient only if the

TABLE I

CORRELATION BETWEEN INTELLIGENCE QUOTIENTS OBTAINED ON TERMAN GROUP MENTAL TEST AND INTELLIGENCE QUOTIENTS OBTAINED ON SAME TEST AFTER AN INTERVAL OF THIRTY MONTHS*

Intelligence Quotients from Second Test, Form B, October, 1932	Intelligence Quotients from First Test, Form A, May, 1930																Total
	70	75	80	85	90	95	100	105	110	115	120	125	130	135	140	145	
125															1		1
120												2	2	3	2		9
115								1		1	5	8	4	1	1	1	22
110							2	3	4	14	6	4	1				34
105					1		2	9	8	5	3						28
100					4	5	9	11	5	2							36
95			1	1	11	5	7	4	2								31
90			2	8	4	5	3										22
85			1	1	1	1											4
80	1			1	1	1											4
75	1		1														2
Total	2		5	11	22	17	23	28	19	22	14	14	7	4	4	1	193

* The correlation is .88±.01. The mean on the first test is 108.79, with a standard deviation of 14.88. The mean on the second test is 104.83, with a standard deviation of 9.90.

means and the variabilities of the two distributions remain the same. The data of Table I show that this condition does not hold for this particular situation. The mean intelligence quotient on the second test is four points below the mean on the first test, and the standard deviation of the second distribution is five points less than the standard deviation of the first distribution. An inspection of the

[1] Rudolf Pintner, *Intelligence Testing*, pp. 89–90. New York: Henry Holt & Co., 1931 (new edition).

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School of Education
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scatter-diagram shows that there is a tendency for those pupils with higher intelligence quotients on the first test to lose in intelligence-quotient points as they grow older, while those with lower intelligence quotients on the first test make appreciable gains on the second test.

This tendency is more clearly shown in Tables II and III. Table II shows the relation between gain or loss in intelligence quotient after an interval of thirty months and the intelligence quotient at the time of the first test. Table III shows the relation between gain or loss in intelligence quotient and chronological age at the time of the first test. It is clearly apparent from the distributions and summaries in these tables that the intelligence quotients of the bright, young eighth-grade pupils in this study have diminished, on the average, twelve points by the time they have reached the second month of the Junior year in high school. On the other hand, the older, dull eighth-grade pupils show an increase in intelligence quotient, on the average, of five or six points during the same interval of time. The pupil whose intelligence quotient at the time of eighth-grade graduation lies between 90 and 109, inclusive, or who is 14–15 years of age, will, on the average, neither gain nor lose appreciably in intelligence quotient.

Are we not to conclude from these data that the Terman Group Test of Mental Ability yields constant intelligence quotients for what may be termed the "average" pupils of Grades VIII–XI but that the intelligence quotients derived from this test for either bright or dull pupils show inconstancy for succeeding ages? If this conclusion is tenable, guidance practices based on a consideration of intelligence quotients from this test become hazardous and uncertain for the bright and the dull pupils. In the case of these pupils what does an intelligence quotient mean? What significance can be attached to it? What dependence can be placed on it? What guidance can be given in terms of this intelligence quotient? Answers to these and similar questions are highly significant if guidance officers are to do their work with skill and understanding.

The inconstancy of the intelligence quotients of the young-bright and of the older-dull pupils, reported in Tables II and III, may result either from a real change in the intelligence of the individuals who

TABLE II

Relation between Change in Intelligence Quotient after an Interval of Thirty Months and Intelligence Quotient at Time of First Test

Change in Intelligence Quotient	Intelligence Quotient at Time of First Test					Total
	79 and Below	80–89	90–109	110–19	120 and Above	
+14	.....	1	.....	.....	.....	1
+13	.....	.....	.....	.....	.....	.....
+12	.....	.....	1	.....	.....	1
+11	.....	1	2	.....	.....	3
+10	.....	.....	2	.....	.....	2
+ 9	.....	.....	1	.....	.....	1
+ 8	.....	1	.....	.....	.....	1
+ 7	.....	1	2	.....	.....	3
+ 6	1	3	2	.....	.....	6
+ 5	.....	2	4	.....	.....	6
+ 4	.....	1	3	.....	.....	4
+ 3	1	1	3	.....	.....	5
+ 2	.....	2	10	.....	.....	12
+ 1	.....	.....	5	1	.....	6
0	.....	1	6	2	.....	9
− 1	.....	.....	6	1	.....	7
− 2	.....	.....	4	3	.....	7
− 3	.....	1	10	5	.....	16
− 4	.....	.....	8	2	.....	10
− 5	.....	.....	5	4	1	10
− 6	.....	1	2	5	4	12
− 7	.....	.....	3	3	1	7
− 8	.....	.....	3	5	3	11
− 9	.....	.....	3	1	3	7
−10	.....	.....	2	2	5	9
−11	.....	.....	3	3	3	9
−12	.....	.....	.....	2	5	7
−13	.....	.....	.....	.....	5	5
−14	.....	.....	.....	.....	3	3
−15	.....	.....	.....	1	1	2
−16	.....	.....	.....	.....	5	5
−17	.....	.....	.....	1	2	3
−18	.....	.....	.....	.....	.....	.....
−19	.....	.....	.....	.....	.....	.....
−20	.....	.....	.....	.....	.....	.....
−21	.....	.....	.....	.....	1	1
−22	.....	.....	.....	.....	1	1
−23	.....	.....	.....	.....	.....	.....
−24	.....	.....	.....	.....	.....	.....
−25	.....	.....	.....	.....	.....	.....
−26	.....	.....	.....	.....	.....	.....
−27	.....	.....	.....	.....	.....	.....
−28	.....	.....	.....	.....	1	1
Total	2	16	90	41	44	193
Total change	9	88	393	260	537	1,287
Average change	4.5	5.5	4.4	6.3	12.2	6.7
Points gained	9	79	155	1	0	244
Points lost	0	9	238	259	537	1,043
Mean algebraic change	+4.5	+4.4	−0.9	−6.3	−12.2	−4.1

TABLE III

Relation between Change in Intelligence Quotient after an Interval of Thirty Months and Chronological Age at Time of First Test

Change in Intelligence Quotient	Age at Time of First Test					Total
	12–0 to 12–11	13–0 to 13–11	14–0 to 14–11	15–0 to 15–11	16–0 to 16–11	
+14					1	1
+13						
+12				1		1
+11			1	1	1	3
+10				2		2
+ 9			1			1
+ 8				1		1
+ 7		1	1		1	3
+ 6			3	3		6
+ 5		1	2	3		6
+ 4				4		4
+ 3		1	2	1	1	5
+ 2		2	7	3		12
+ 1			6			6
0		6	2	1		9
− 1		3	4			7
− 2		3	4			7
− 3		9	7			16
− 4		6	4			10
− 5		7	3			10
− 6	2	9	1			12
− 7		4	3			7
− 8	2	4	5			11
− 9	1	5	1			7
−10		8	1			9
−11	2	4	3			9
−12	2	5				7
−13	2	3				5
−14	2	1				3
−15		2				2
−16	2	3				5
−17	1	2				3
−18						
−19						
−20						
−21		1				1
−22	1					1
−23						
−24						
−25						
−26						
−27						
−28	1					1
Total	18	90	61	20	4	193
Total change	236	643	264	109	35	1,287
Average change	13.1	7.1	4.3	5.5	8.8	6.7
Points gained	0	19	81	109	35	244
Points lost	236	624	183	0	0	1,043
Mean algebraic change	−13.1	−6.7	−1.7	+5.5	+8.8	−4.1

composed these groups or from some inadequacy of the measuring instrument and technique by which the intelligence quotient is derived. The observed inconstancy is more likely the result of the second of these two possible sources, since any one of several factors in mental-test construction and measurement technique may contribute to the unreliability and the invalidity of test results. The test materials may be inappropriate for all levels and degrees of intelligence. The bright pupil may reach the "ceiling" of the test, or the test may otherwise fail adequately to sample and measure his abilities. The test may be imperfectly standardized for the above-average and the below-average pupils, especially at the upper-age range of the test. It is not known definitely when the average individual reaches mental maturity, neither is it known when the lower-than-average or the higher-than-average person reaches mental maturity. Hence, sixteen may not be the proper maximum chronological age to be used in computing intelligence quotients. Finally, the intelligence-quotient technique may prove to be quite inapplicable beyond the early 'teen ages, especially for the bright pupils.

Freeman has reported the decrease in the intelligence quotients obtained from the Stanford Revision of the Binet-Simon Tests for succeeding ages.[1] The age norms on the Terman Group Test of Mental Ability are Stanford-Binet equivalents.[2] It is not surprising, therefore, that a mean decrease in intelligence quotient from 108.8 to 104.8 was found for the group here reported, but the added significant fact is that the observed decrease results from diminishing intelligence quotients for the original young-bright pupils. This tendency for bright children to lose in intelligence quotient as they grow older is supported by studies of retests of gifted children.[3] Equally significant, however, is the fact that the older-dull group

[1] Frank N. Freeman and Others, "The Influence of Environment on the Intelligence, School Achievement, and Conduct of Foster Children," *Nature and Nurture*, p. 191. Twenty-seventh Yearbook of the National Society for the Study of Education, Part I. Bloomington, Illinois: Public School Publishing Co., 1928.

[2] Manual of Directions for Terman Group Test of Mental Ability, p. 10. Yonkers-on-Hudson, New York: World Book Co., 1920.

[3] Barbara Stoddard Burks, Dortha Williams Jensen, and Lewis M. Terman, *The Promise of Youth*, p. 508. Genetic Studies of Genius, Vol. III. Stanford University, California: Stanford University Press, 1930.

shows an average gain in intelligence quotient. This finding is quite contrary to the opinion generally held and aptly expressed by Henmon and Burns when they write: "It is well established that with feeble-minded subjects the I.Q.'s tend to decrease. This is the evident tendency with borderline cases also, and it is a very significant fact in making provisions for them and predictions concerning them."[1] A decreasing intelligence quotient for feeble-minded subjects may be an established fact, but whether this tendency holds for borderline and dull-normal subjects is still an unsettled question, especially if the intelligence quotients are obtained from group tests administered during the time the subjects are experiencing the benefits of a good secondary-school environment.

If the observed diminishing intelligence quotient for the bright group is to be explained in terms of the norms derived from the Stanford-Binet mental ages, it is likely that many of the commonly used group tests of mental ability will yield similarly decreasing intelligence quotients for succeeding age groups, since the accepted practice is to standardize group tests in terms of Stanford-Binet norms. This supposition can be settled only after careful and extended investigation.

IMPLICATIONS FOR GUIDANCE PRACTICES

Whatever may be the source of the observed phenomenon of the decreasing intelligence quotient, the fact that it does decrease with succeeding teen ages is highly significant for guidance. If the guidance counselor is to use intelligence quotients wisely, it becomes necessary for him to know, for each intelligence-quotient group, at what age level the decrease begins for each sex and the amounts of decrease to be expected for each succeeding year. Should future research reveal that this phenomenon is not common to all group tests, the interpretation of each particular test in terms of yielded intelligence quotients would necessarily be different, and the guidance practices would become exceedingly complex. Until future investigation reveals what changes, if any, obtain for the intelligence quo-

[1] V. A. C. Henmon and Helen M. Burns, "The Constancy of Intelligence Quotients with Borderline and Problem Cases," *Journal of Educational Psychology*, XIV (April, 1933), 250.

tient at succeeding ages at the secondary-school level on the more commonly used tests, guidance in terms of intelligence quotients must be practiced with extreme caution and circumspection.

At best, an intelligence quotient obtained during the latter part of the high-school period, that is, during the middle or late teens is of questionable significance. Garrett and Schneck discuss its limitations as follows:

> It is sometimes not clearly understood that the failure of the Binet and its derivatives to differentiate in terms of M.A. beyond the early teens makes it impossible for the I.Q.'s of superior children to remain constant. Mental age, however, inevitably lags farther and farther behind chronological age as the superior child grows older. The maximum mental age which an adult can earn on the Stanford-Binet Scale is nineteen and one-half years. Hence, the maximum I.Q. which an adult can achieve, no matter how bright he may be, is 19.5÷16, or 122. If a child of four has a mental age of eight, his I.Q. is 200. Since the maximum mental age which this child can earn is 19.5, his I.Q. will remain constant, assuming mental growth to continue at the same rate, until he is nine years nine months old, when his I.Q. is 19.5÷9.75, or 200. After he is ten years old, the I.Q. of this child must necessarily decrease below 200, becoming 122 when he is an adult. This drop in I.Q. is inherent in the age scale, and applies only to superior children. With normal and retarded children the scale does not show this inadequacy, since the M.A. in such cases is never greater than the C.A.[1]

Peterson, in discussing this problem, is equally emphatic in pointing out the inapplicability of the intelligence-quotient technique for measuring bright secondary-school pupils:

> Another difficulty with the M.A. as actually used is that it can go only as high as the age corresponding to the average performance of adults goes. Very bright children above twelve or fourteen years of age surpass such a norm and cannot really be tested by the I.Q. technique; M.A.'s as high as their test scores require are in all scales mere artifacts, constructed by other methods than are the M.A.'s of lower levels in the scale. Even the best of these devices conceivable—testing large numbers of bright children of different I.Q. levels above 100 and continuing the tests on different forms of a good Binet type scale until the children have reached adulthood—has not been used. The I.Q. of a good senior high school or college student cannot be found. Probably a better method than to make such a measurement possible is to use only improved performance scales

[1] Henry E. Garrett and Matthew R. Schneck, *Psychological Tests, Methods, and Results*, Part II, pp. 18–19. New York: Harper & Bros., 1933.

of some of the best types now available, stating results in standard-deviation units or in the less satisfactory but more easily understood percentile scores.[1]

These are important pronouncements for guidance officers and for educators who have accepted uncritically the dogma of the constancy of the intelligence quotient, irrespective of age or ability level. If growth in the functions or abilities measured by mental tests reaches a maximum or if the tests as now constructed fail to measure these abilities or functions beyond the middle teen ages, it becomes illogical to think of a rate of growth of a function or ability after it has reached its maximum development, and it is likewise absurd to compute indices of rate of development after the measuring instrument fails to record increases in the ability or function being measured. Since one or the other, or a combination, of these alternatives seems to apply to the present-day mental tests for bright secondary-school pupils, the intelligence quotients derived from them are quite meaningless and therefore useless. Consequently, it is conceivable that more harm than good may result from arbitrary classification and prognostication based on intelligence quotients obtained as late as the junior-senior high school years, and it is safe to say that most secondary-school guidance practices today are based on a single test record, or perhaps two, instead of on a continuous and cumulative record of test data from early elementary-school days on.[2] Unless cumulative records are available, guidance officers, teachers, and administrators would do well to attach little significance to intelligence quotients obtained during the secondary-school period, especially in the case of bright children. If cumulative records are available, intelligence quotients obtained this late are likely to prove quite inconsistent when compared with the earlier records. Some other technique for distinguishing differences in ability, achievement, or aptitude might well take the place of the intelligence quotient during the secondary-school period. The significance and the practicality of percentile ranks or standard scores on general mental, achievement, and prognostic tests for secondary-school pupils need

[1] Joseph Peterson, "Utilizing the I.Q. Test in Practical Education," *Nation's Schools*, XI (May, 1933), 43–46.

[2] Max McConn, "Educational Guidance Is Now Possible," *Educational Record*, XIV (October, 1933), 475–99.

extended investigation. Guidance officers and others responsible for interpreting mental and educational results for practical use at the secondary-school level can carry forward such investigations, and in the meantime they can avoid attaching to the intelligence quotient a significance which by its very nature does not exist.

SUMMARY

1. On a test and retest after 30 months given to 193 secondary-school pupils, the intelligence quotients derived on the Terman Group Test of Mental Ability were found to be inconstant for the dull and the bright groups. The brighter groups lost in intelligence-quotient points, and the dull groups gained. The intelligence quotient remained constant for the average group.

2. The source of this inconstancy is attributed to the nature of Stanford-Binet mental-age norms and the inapplicability of the intelligence-quotient technique for bright secondary-school pupils.

3. On the basis of these data secondary-school guidance practices based largely on intelligence quotients secured on group tests are called into question. The precariousness of such practices is attributed to the inappropriateness of the intelligence-quotient technique beyond the early teen ages and the consequent unreliability of the intelligence quotient.

4. There is a need for some other more meaningful technique for distinguishing differences in ability during the middle and late teen ages. Percentile ranks and standard scores may prove practical and significant. Guidance officers are urged to investigate the appropriateness of these devices and to temper guidance practices, customarily based on intelligence quotients obtained during the secondary-school period, with caution and suspended judgment.

SELECTED REFERENCES ON SECONDARY-SCHOOL INSTRUCTION

I. Curriculum, Methods of Teaching and Study and Supervision, and Measurement

LEONARD V. KOOS[1]
University of Chicago

This bibliography presents the first list of selected references in the third annual cycle of twenty lists covering practically the whole field of education which is being published co-operatively by the *School Review* and the *Elementary School Journal*. This bibliographical service is being continued because a poll of a generous sampling of subscribers of both journals showed that an overwhelming majority desire it. The order of appearance of the lists in the cycle will be identical with that of former years.

The reader is reminded that the term "instruction" as here used comprehends curriculum, methods of teaching and study, supervision, and measurement. Although most of the items deal with instruction in secondary-school grades, several apply to both elementary and secondary levels. The present general list is to be followed in February and March by lists in the different subject fields prepared by well-known specialists. This list includes, for the most part, materials published between November 1, 1933, and November 1, 1934.

Curriculum[2]

1. Aikin, Wilford M. "Report of Commission on the Relation of Secondary School and College," *Proceedings of the Eighteenth Annual Meeting of the Department of Secondary-School Principals*, pp. 174–85. Bulletin of the Department of Secondary-School Principals, No. 50. Chicago: Depart-

[1] J. M. O'Rourke, a graduate student in the Department of Education of the University of Chicago, assisted in the selection and annotation of this list.

[2] See also Item 502 in the list of selected references appearing in the October, 1934, number of the *School Review*, Items 506 and 518 in the November, 1934, number of the *School Review*, and Item 298 in the September, 1934, number of the *Elementary School Journal*.

ment of Secondary-School Principals of the National Education Association (5835 Kimbark Avenue), 1934.

Outlines the plans and the progress of the work of the Commission on the Relation of Secondary School and College of the Progressive Education Association.

2. ALBERTY, H. B. "The Progressive Movement in Secondary Education," *Bulletin of the American Association of Collegiate Registrars*, IX (July, 1934), 310–25.

An appeal for a more liberal attitude on the part of the colleges toward the "progressive" secondary schools.

3. BAKER, G. DERWOOD. "The Curriculum for Social Intelligence: Some Negative Suggestions," *California Quarterly of Secondary Education*, IX (June, 1934), 324–27.

Critically questions the theory that the school can lead in social reconstruction.

4. BEATTY, WILLARD W. "Freedom for the Secondary School," *School Executives Magazine*, LIII (April, 1934), 231–33.

A plea for freedom of the secondary curriculum from college domination and a plan for a curriculum along more progressive lines. Outlines the program of the Bronxville (New York) High School.

5. BRIGGS, THOMAS H. *Secondary Education*. New York: Macmillan Co., 1933. Pp. x+578.

In chapters xvi–xvii the author criticizes the present curriculum, sketches curricular development, proposes an ideal program, and lists a series of essential steps incident to an immediate program of revision and reconstruction. Certain other chapters of the book bear on curriculum problems.

6. BROADY, KNUTE O. "Curriculum for the Three-Teacher, Six-Year High School," *Junior-Senior High School Clearing House*, VIII (April, 1934), 486–89.

A proposed program of studies for a small rural high school, with suggestions for enriching the curriculum by combinations of classes in alternation and by supervised correspondence study.

7. BRUNER, HERBERT B. "Plans of Curriculum Building and Research," *The Curriculum*, pp. 128–34. Review of Educational Research, Vol. IV, No. 2. Washington: American Educational Research Association of the National Education Association, 1934.

A critical analysis of current curriculum research, with a suggested program illustrated in two fields: language and social science.

8. BURTON, WILLIAM H. *Introduction to Education*. New York: D. Appleton-Century Co., Inc., 1934. Pp. xiv+834.

Part IV, "The Materials of Instruction: The Curriculum," gives a brief survey of the curriculum in both elementary and secondary schools. Covers the general historical background, controversial issues, and techniques used in scientific curriculum construction.

9. CASWELL, H. L. "Practical Application of Mechanistic and Organismic Psychologies to Curriculum Making: Building with Mental Ability and Feeding Its Growth," *Journal of Educational Research*, XXVIII (September, 1934), 16–24.

The organismic point of view is here contrasted with what the writer terms the "mechanistic theory" in curriculum-building.

10. CLEMENT, J. A. "An Analytical Study of Courses of Study of North Central Secondary Schools," *North Central Association Quarterly*, VIII (April, 1934), 475–90.

An investigation of courses of study in a sampling of high schools in the North Central Association region.

11. DECH, ALAN O. "A Guide to the Literature of the Curriculum," *Teachers College Record*, XXXV (February, 1934), 407–14.

An excellent summary of some of the major sources of material for the study of the curriculum, including lists of printed and mimeographed materials. The names and the location of the principal curriculum-research centers in the United States are given.

12. DEIMER, ROLAND R., and DALTHORP, CHARLES J. "Modern Curriculum Silenced Clamor for Tax Reduction," *Nation's Schools*, XIV (July, 1934), 27–30.

A practical account of how a small city high school adjusted itself to tax-reduction demands without impairing the quality or the quantity of the essential services.

13. DOUGLASS, AUBREY A. *The American School System*. New York: Farrar & Rinehart, Inc., 1934. Pp. xii+492.

Chapter ix, "The Curriculum," gives a statement of the relation between society and the curriculum and an enumeration of the modern methods of curriculum construction.

14. FEATHERSTONE, W. B. "Some Curriculum Developments in Los Angeles," *Junior-Senior High School Clearing House*, IX (September, 1934), 10–13.

Briefly sketches present developments in curriculum adjustment in Los Angeles.

15. FERRISS, EMERY N. "Curriculum Trends and Problems in the Rural High School," *Junior-Senior High School Clearing House*, VIII (April, 1934), 458–63.

A review of trends in the curriculums of small high schools, with suggestions for adapting the small high school to its clientèle.

16. FRENCH, WILL. "A Tradition-free Curriculum for the Junior High School," *Proceedings of the Eighteenth Annual Meeting of the Department of Secondary-School Principals*, pp. 53–65. Bulletin of the Department of Secondary-School Principals, No. 50. Chicago: Department of Secondary-School Principals of the National Education Association (5835 Kimbark Avenue), 1934.

Urges that three returns can be expected from the junior high school: (1) an integrated group life, (2) an intelligent attitude toward the physical world, and (3) a full development of the individual in his personal life.

17. GAUMNITZ, WALTER H. *High-School Instruction by Mail.* United States Office of Education Bulletin No. 13, 1933. Pp. vi+70.

Surveys the possibilities and problems of correspondence study for high-school instruction.

18. GRAY, WILLIAM S. (Editor). *General Education.* Proceedings of the Institute for Administrative Officers of Higher Institutions, Vol. VI. Chicago: University of Chicago Press, 1934. Pp. viii+188.

Many of the papers are concerned with curriculum problems at the junior-college level and below.

19. HEPNER, WALTER R. "The Process of Reconstructing the Secondary School Program," *California Quarterly of Secondary Education,* IX (April, 1934), 223–31.

Stimulating and suggestive for the principal in his efforts to become a "leader of curriculum revision and director of learning activities."

20. JUDD, CHARLES H. *Education and Social Progress.* New York: Harcourt, Brace & Co., 1934. Pp. xii+286.

The third chapter summarizes and indicates the significance of the social forces determining the curriculum of the schools.

21. JUDD, CHARLES H. "The Curriculum in View of the Demands on the Schools," *School Review,* XLII (January, 1934), 17–25.

A new theory of curriculum construction is proposed, namely, that the curriculum should be formulated after an extensive study of the social heritage and of present social trends.

22. JUDD, CHARLES H. "Social Trends and Trends in Education," *North Central Association Quarterly,* VIII (January, 1934), 338–46.

Pointedly reviews the social forces that have operated and are operating on the curriculum.

23. KINNEMAN, JOHN A. "Social Theories and Education," *School and Society,* XXXIX (April 21, 1934), 489–95.

Outlines four fundamental social principles concerning the curriculum.

24. LOOMIS, A. K., LIDE, EDWIN S., and JOHNSON, B. LAMAR. *The Program of Studies.* National Survey of Secondary Education Monograph No. 19. United States Office of Education Bulletin No. 17, 1932. Pp. x+340.

Part I, including four-fifths of the monograph, reports and interprets the evidence from eleven investigations of trends in programs of studies at the junior and the senior high-school levels. Reliance can be placed on the trends disclosed because each investigation is concerned with a group of schools identical at the various time intervals represented.

25. MERIAM, JUNIUS L. "The Traditional Curriculum of the High School Is Challenged by the Activity Curriculum of the Elementary School," *Proceedings of the Eighteenth Annual Meeting of the Department of Secondary-School Principals*, pp. 107–20. Bulletin of the Department of Secondary-School Principals, No. 50. Chicago: Department of Secondary-School Principals of the National Education Association (5835 Kimbark Avenue), 1934. Also in *School and Society*, XL (August 11, 1934), 169–77.

Critically challenges the traditional secondary-school curriculum and offers a definite reorganization based on activities as exemplified in many elementary-school programs today.

26. NORTON, MARGARET ALLTUCKER. "Research and Various Approaches to Curriculum Building," *Methods and Technics of Educational Research*, pp. 4–14. Review of Educational Research, Vol. IV, No. 1. Washington: American Educational Research Association of the National Education Association, 1934.

A helpful summary of the present techniques in curriculum-building.

27. PLATT, EARL T. "Curriculum Enrichment for the Small High School," *School Review*, XLII (February, 1934), 121–28.

Proposes enrichment of the curriculum in small high schools through development along four main lines: (1) scientific schedule-making, (2) careful combinations of classes, (3) use of the radio, and (4) correspondence study.

28. PRUNTY, MERLE. "Reconstructing the Curriculum," *School Executives Magazine*, LIII (January, 1934), 131–33.

Gives a concise outline of a practical program of curriculum construction in Tulsa, Oklahoma.

29. RYAN, H. H. "A Curriculum Experiment at Wisconsin High School," *Wisconsin Journal of Education*, LXVI (May, 1934), 406–7.

Describes a curriculum experiment in the Wisconsin High School of the University of Wisconsin. The curriculum was based on four constants: health, use of leisure time, vocations, and community living. A part of the larger experiment in secondary-school curriculum reorganization sponsored by the Progressive Education Association.

30. STRUTHERS, ALICE BALL. "Integration—Some Underlying Principles and Implications," *California Quarterly of Secondary Education*, IX (October, 1933), 13–18.

The "new" education in terms of Gestalt psychology and the "principle of wholeness."

31. WEERSING, FREDERICK J. "A Tentative Plan for the Reorganization of Secondary School Curricula," *California Quarterly of Secondary Education*, IX (January, 1934), 157–66.

A plan for the reorganization of the high-school curriculum on the basis of child growth and the values and implications of social life.

32. WILSON, GEORGE D. "Broadening the Junior College Curriculum," *Junior College Journal*, IV (March, 1934), 290–96.

Proposes a series of courses for the junior college intended to give a broadening view of man and his world—physical, institutional, and mental.

METHODS OF TEACHING AND STUDY AND SUPERVISION[1]

33. BARTON, CARRIE R. "A Selected Bibliography on Supervision," *Educational Method*, XIII (May–June, 1934), 409–15.

A selected bibliography from leading journals, extending from January 1, 1923, to June 1, 1933.

34. BOLTON, FREDERICK E. "The Revival of the Textbook," *American School Board Journal*, LXXXVII (December, 1933), 19–21.

Using findings in several of the studies in the National Survey of Secondary Education, the author has shown that the textbook is an indispensable tool in all schools.

35. BRADY, DAVID B. "An Analysis of the Objectives and Functions of Supervision," *Educational Method*, XIII (December, 1933), 137–41.

An investigation involving thirty-seven department heads in Rochester, New York, to ascertain their objectives, methods of supervision, and devices employed to aid them in supervision.

36. BRIGGS, THOMAS H. "Supervisory Experimentation," *School Review*, XLI (December, 1933), 737–46.

A critical appraisal of the results of scientific education in actual classroom practice. Gives a list of concrete suggestions for experimentation that will solve immediate supervisory problems.

37. COLLINGS, ELLSWORTH. *Supervisory Guidance of Teachers in Secondary Schools*. New York: Macmillan Co., 1934. Pp. x+614.

A treatise on supervision in harmony with the author's activistic theory of teaching.

38. DOUGLASS, HARL R., and BOARDMAN, CHARLES W. *Supervision in Secondary Schools*. Boston: Houghton Mifflin Co., 1934. Pp. xvi+564.

Supervision in secondary grades is dealt with in this book under four headings: "Nature and Organization of Supervision," "Techniques of Supervision," "Types of Supervisory Services," and "The Supervisor." A comprehensive textbook.

39. DUTTON, C. F. "Technique, in Handling Large Groups, of Maintaining Teacher-Pupil Contacts," *Ohio Schools*, XII (March, 1934), 84–85.

Describes the mechanics of an organization for handling large classes and still maintaining personal contact between teacher and pupil.

[1] See also chapter xxiii in Item 8 and chapter x in Item 13 in this list, Part Eight in Item 506 in the list of selected references appearing in the November, 1934, number of the *School Review*, and Items 328 and 363 in the September, 1934, number of the *Elementary School Journal*.

40. FICHANDLER, ALEXANDER. "Supervisor-Teacher Relationship and Mental Hygiene," *School and Society*, XXXIX (June 30, 1934), 832–35.

A brief discussion of ways to guide a teacher to higher efficiency without conflicts or repressions that reflect on her personality.

41. GRAY, RUTH A. "Special Methods of Instruction and Organization," *Bibliography of Research Studies in Education, 1931–1932*, pp. 17–22. United States Office of Education Bulletin No. 6, 1933.

A bibliography of Masters' and Doctors' theses to be found in the institutions of higher learning, classified under: (1) "Ability Grouping," (2) "Activity Programs," (3) "Contract and Unit Plan," (4) "Home Rooms," (5) "Individual Instruction," (6) "Methods of Study," (7) "Platoon Schools," (8) "Radio in Education," and (9) "Visual Instruction."

42. KILZER, L. R. "Improving Supervised Study," *School Executives Magazine*, LIII (November, 1933), 72–73.

A discussion of supervised study with practical suggestions for administration of such study.

43. MONROE, WALTER S. "Controlled Experimentation as a Means of Evaluating Methods of Teaching," *Methods and Technics of Educational Research*, pp. 36–42. Review of Educational Research, Vol. IV, No. 1. Washington: American Educational Research Association of the National Education Association, 1934.

Points out the difficulty in determining scientifically the relative merits of methods and expresses skepticism as to the scientific validity of many studies in this field.

44. OTTO, HENRY J. "Historical Sketches of Administrative Innovations," *Educational Administration and Supervision*, XX (March, 1934), 161–72.

A historical sketch of the developments of various "plans" of teaching, extending in time from 1862 to 1932. The implication is that educational writers should acquaint themselves with the extent to which many of the plans have declined in use.

45. RANKIN, PAUL T. (Chairman). *Scientific Method in Supervisory Programs*. Seventh Yearbook of the Department of Supervisors and Directors of Instruction of the National Education Association. New York: Teachers College, Columbia University, 1934. Pp. xiv+194.

In the words of the chairman of the committee which prepared this report, the yearbook is "organized to present in the first two chapters fresh statements respectively of the scientific method in education and of the nature and function of supervision, and then to give in subsequent chapters some discussion of how to conduct scientifically each of the chief activities carried on by supervisors" (p. vi).

MEASUREMENT[1]

46. DOUGLASS, HARL R. "The Effects of State and National Testing on the Secondary School," *School Review*, XLII (September, 1934), 497–509.

Points out the dangers of the state and nation-wide testing programs and quotes several leading educators on the subject.

47. DRESDEN, B. M. "Use of Tests as a Means of Discovering Causes of Failures in High School," *Educational Method*, XIII (February, 1934), 267–71.

With failure of a pupil defined as his not reaching "that result which his native and acquired abilities indicate he should reach" (p. 267), this article reports the results of the use of tests in diagnosing pupil difficulties.

48. LEFEVER, D. WELTY. "Adapting Measurement to the Changes in Secondary Education," *Junior-Senior High School Clearing House*, VIII (February, 1934), 330–33.

A brief analysis of current misconceptions in testing, with a suggested outline of procedure for the important functions of thinking and reasoning.

49. WOOD, BEN D. "Co-ordinated Examining and Testing Programs," *Educational Record*, XV (January, 1934), 46–55.

A survey of the purposes and the program of the Educational Records Bureau and the Co-operative Test Service. Gives the essential features of state and nation-wide testing programs.

[1] See also Item 414 in the list of selected references appearing in the June, 1934, number of the *School Review*.

Educational Writings

REVIEWS AND BOOK NOTES

The scientific background of teaching.—A few years ago the *Journal of the National Education Association* began the practice of listing the sixty best educational books of the year. I have at hand this "Who's Who" of educational books and a number of the books so rated. The length of these books is, on the average, over 350 pages. If it may be assumed that a careful reader would cover forty pages in an hour of reading, he would require at least 104 days, reading five hours a day, to finish the annual sixty "best" educational books. Obviously, there has been too much written about education, too much that is a reconditioning of previous writings. Particularly is this statement true in the field of educational theory and philosophy. But there are exceptions.

When Morrison's *The Practice of Teaching in the Secondary School* appeared in 1926, we had in it an original piece of work. Here was a book that was not a rebuilt 1918 model. It was a product of maturity in thought and of practice. Its impact on secondary education was immediate and widespread. It was unquestionably the book of the decade in secondary education—a book to be read seriously by teachers everywhere.

Students of Morrison's writings have known for some time that a sequel was in the making. It was inevitable. The first book in the series dealt with practice. The present volume[1] is a study in theory. In it Morrison announces a third volume, which will present "a defensible theory of the curriculum of general education and of the school system as a civil institution" (p. iv). There is a gap of ten years between the first two volumes in this sequence, but it is my belief that the third will follow closely on the heels of the second.

My purpose in calling attention to the time factor in the production of the record of Morrison's educational philosophy is tinged with selfishness. *The Practice of Teaching in the Secondary School* and *Basic Principles in Education* represent the product of a matured thinking. Time is the essence of maturity. Each of these books has the earmarks of scholarship. The style is authoritative. Something is said. Hence, one is stimulated to action: having read, one feels the urge to develop a "defensible curriculum" and then to check one's progress

[1] Henry C. Morrison, *Basic Principles in Education.* Boston: Houghton Mifflin Co., 1934. Pp. iv+452. $2.50.

against the Morrisonian notions to appear in the third volume. I should like to have the curriculum study at hand now.

The present volume is a study of what lies behind teaching. It is an attempt to get away from an educational theory based on fad and fancy and to formulate a theory of education which can be defended on scientific grounds. It contains eleven chapters with the following titles: i, "Chance and System"; ii, "Terms and Sources"; iii, "Man as a Product of Organic Evolution"; iv, "The Adaptive Organism"; v, "Physiological Aspect of the Adaptive Organism"; vi, "Psychological Aspect of the Adaptive Organism"; vii, "Personality"; viii, "The Fabric of Personality"; ix, "Integration of Personality"; x, "Education as Adjustment"; xi, "Educability."

The thesis of Morrison's philosophy is stated in the opening chapter. In it he makes a strong plea for the development of a learned profession in teaching which will not be "primarily a system of practice but primarily a system of thinking . . . . founded on demonstrated scientific principle" (p. 26).

The book begins in a vigorous tone and in the first paragraphs issues a forthright challenge to much that is accepted in the practice of teaching. Frequent reference is made to parallels existing between the development of educational practice and that in other fields, such as medicine and engineering.

Terms are defined in the second chapter, and from then on Morrison sets himself to the self-appointed herculean task of reaching conclusions on what, in fact, education is.

His starting point is the doctrine of evolution. On this framework is traced the story of man's origin and of what man has come to be. There follows, beginning with chapter iv, the main body of the book, which is a study of the adaptive organism, or the physical and the psychical instruments by means of which learning takes place. In this discussion the organism is considered to be that instrument through which adjustment is brought about and appropriate responses made, and the contrast is sharply drawn between the organism itself in its functioning and what is the outcome of its functioning. In other words, adaptive responses are distinguished from adaptive changes. On this fulcrum Morrison opens the door to a study of the fabric and integration of personality. As he states it, "Self is the entity in which adjustment inheres and personality the form which adjustment takes" (p. 226). The integrated personality is adjusted and, being in balance, is educated. Education, therefore, becomes a process of adjustment and of balance.

Basic Principles in Education is written in an easy reading style. It is filled with clarifying examples and throughout reflects the breadth of the author's scholarship. It should develop among scientifically trained thinkers a large measure of respect for the educational leadership which Morrison is exerting. American education needs more of Morrison and less of mysticism.

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The orientation of students of education.—The publication in 1918 of Judd's *Introduction to the Scientific Study of Education* has been followed by the appearance of a score of books in this field which are designed for use in the beginning course of the type variously designated as "general," "orientation," and "introductory" courses. These textbooks amply demonstrate the fact that even professional educators have not arrived at generally accepted solutions to the numerous fundamental problems involved in writing books of this type.

A recent publication[1] represents a noteworthy attempt to overcome these difficulties. It aims to introduce prospective teachers to the general field of education "in such manner that they will (*a*) develop scientific and philosophic attitudes toward education, (*b*) recognize the problems in the field and participate in solving them, and (*c*) recognize and understand the system of education as at present operated in the United States" (p. vii). The book is intended to present to uninformed and inexperienced undergraduates a unified view of the entire field of education and to lay the foundation for later, specialized courses.

The book begins with a consideration of the nature of modern society and the place of education in the social order. Then follows a discussion of the application of scientific and philosophic methods to the solution of educational problems. These two parts, entitled "The Function and Aim of Education" and "The Method of Educational Thinking," respectively, constitute a fundamental basis of concepts and principles and of methods of thinking for the later divisions of the book. The last five parts are entitled: "The School System of the United States," "The Materials of Instruction: The Curriculum," "The Pupil Population," "The Educative Process," and "Education as a Profession." No special division on methods or techniques of classroom teaching is included because the author believes a second introductory course should be devoted to the general field of teaching (as distinct from that of education). In other respects the book is thoroughly comprehensive in scope.

This volume represents an outstanding contribution, in the opinion of the reviewer, because of the marked success achieved in surmounting the many difficulties involved in constructing an introductory course. In performing this task, the author made detailed analyses of all available outlines and textbooks on the subject, obtained the suggestions and criticisms of several eminent authorities, and experimented over a period of many years with various types of material, schemes of organization, and methods of presentation. The book is obviously not an armchair product. The author is to be commended particularly for subordinating his own specialized interests, thus securing a balance of treatment which is equaled by few other textbooks on this subject.

A further merit of the volume is that it has avoided the extremes represented, on the one hand, by a highly encyclopedic treatment wherein the learner is lost in a maze of unorganized facts and, on the other hand, by a difficult abstract treatise which is beyond his grasp. Again, the treatment is such that the student

[1] William H. Burton, *Introduction to Education*. New York: D. Appleton-Century Co., Inc., 1934. Pp. xiv+834. $3.00.

need resort neither to verbatim memorizing nor to glib generalizing. The book provides in an effective way for the comprehension and organization of major threads of thought. The material is presented in such a way that both a knowledge of facts and a philosophy with which to interpret the facts should result. A stimulating and enlightening discussion is supplemented by long lists of thought-provoking exercises and of well-selected readings, all of which make the volume a definite aid to learning. Each of the seven major divisions of the book constitutes a logically coherent unit and is introduced by a preview which explains its significance and its organization. The use of outlines and summaries helps to make clear the unity of the individual chapters. Organization and integration are in evidence throughout the volume.

This textbook is admirably suited to accomplish its avowed purposes. It should be highly satisfactory for use both by beginning students of education and by experienced teachers who lack a well-rounded view of the field. In addition, however, to fulfilling its immediate functions, it should serve as a helpful example in solving the problems involved in constructing an orientation course in any field. It represents, therefore, a twofold contribution.

EDWARD F. POTTHOFF

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The educational significance of physical education.—Physical education has been changing in its emphasis throughout the last thirty years. With this change in emphasis there has been the usual swinging from one fad or overemphasis to another. Far too frequently the impression of physical education held by the educational administrator or the classroom teacher is that represented by the physical education of his own school days. Two books, both bearing the same title, have appeared which attempt to present a comprehensive survey of the essential facts in physical education and to interpret these facts and principles in a way to make them intelligible to the educational fraternity.

Nixon and Cozens[1] have written a book which is primarily intended to be used as a textbook for an orientation course in physical education for professional students. They have attempted, quite successfully, to present the foundation facts on which the modern type of physical education is based, and, after laying a foundation on these facts, they discuss a number of the present-day problems in physical education which seem to them to be of the most significance. Some of these problems are social-moral training through physical education, physical education and leisure time, and a discussion of competitive sports and athletics in the schools. The third part of the book discusses the qualifications and the training of professional teachers of physical education. The book has an excellent set of well-annotated references and possesses a progressive unity throughout. It is perhaps best adapted for use in professional courses and for the purpose of bringing the out-in-the-field teacher of physical education up

[1] Eugene W. Nixon and Frederick W. Cozens, *An Introduction to Physical Education*. Philadelphia: W. B. Saunders Co., 1934. Pp. 262. $2.50.

to date. It uses the language of the physical educator more than that of the general educator.

Sharman's book[1] seems, on the other hand, to be written primarily for the general educator. From cover to cover it uses the terminology and presents the philosophy of the Columbia school of education. The educational administrator and the classroom teacher who are up to date in their reading will find this book an excellent interpretation of the modern type of physical education in terms which they can thoroughly understand.

Sharman's book covers more ground than its title would suggest. It adds to the usual treatment of the development of modern physical education and of its aims and objectives discussions of the makeup of the school program, the method of attacking the problem of curriculum construction in physical education, the health service, and the health-instruction program. It gives considerable space to the foundations of method in physical education and to the psychology of physical education. In the latter part it attempts to present many of the essentials of the administrative aspects of elementary- and high-school physical education in a small compass.

To the reviewer the book seems to lack unity and seems to be made up of a large number of discrete units of general education, physical education, health education, and other things, assembled from widely different sources. As a textbook for professional students of physical education, it would seem to have a number of shortcomings. As a textbook for students in normal schools or teachers' colleges who are expecting to be classroom teachers or administrators, this book seems to be about the best available compendium of information that the reviewer has seen.

Both books are well worth careful study by educational administrators.

C. H. McCloy

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Introducing high-school pupils to the laws of business.—The need for a course in business law in our secondary schools should be unquestioned. It matters not what vocation one follows, a knowledge of the law will be needed. A person may escape the dentist and the doctor, but he cannot escape the law. Ignorance does not excuse his breaking it.

The purpose of a course in business law is not to prepare a person to act as his own lawyer. Its aim is to give him, in clear, easily understood language, the legal information which will aid him in conducting his daily affairs in a proper and an efficient manner. The authors of a recent book[2] have emphasized these objectives in their Preface and have kept the aims vividly before the pupil throughout the course.

[1] Jackson R. Sharman, *Introduction to Physical Education.* New York: A. S. Barnes & Co., Inc., 1934. Pp. viii+318. $2.00.

[2] George G. Bogert, Kennard E. Goodman, and William L. Moore, *Introduction to Business Law.* Boston: Ginn & Co., 1934. Pp. viii+584. $1.60.

The outstanding contribution of the book is its approach to the subject. The pupil is introduced to business law through a study of court procedure, torts, and crimes. This approach not only makes the subject matter interesting but gives the pupil a good perspective of what follows. The violation of any so-called "business law" is colored by either a tort or a crime, or both. On analyzing such a violation, the pupil is taught to see himself, not only in relation to others in a business transaction, but in relation to society as a whole.

The book is organized in twelve parts. The topics included, in the order in which they are treated, are: (1) sources and administration of law, (2) contracts, (3) sales, (4) insurance, (5) negotiable instruments, (6) guaranty, (7) bailments, (8) agency, (9) master and servant, (10) partnerships, (11) corporations, (12) property.

Each chapter opens with a set of simple questions designed to stimulate interest and provoke discussion. These questions are followed by an illustrative example which shows the application of some major point that is to be covered. Throughout the main body of the textbook there are similar examples illustrating every principle that is stated. At the end of each chapter questions and cases are given to illustrate further and to clinch the principles discussed. However, the usual citations to the state court reports from which the cases may have been taken are not given. Another valuable contribution is the list of legal words and phrases at the end of each chapter. The mastery of these terms broadens the understanding of the pupil and gives him the necessary vocabulary to express himself well in all matters where a consideration of law is involved.

The non-technical language in which the book is written makes for greater interest and comprehension. The text is, as a whole, easily read; the main topics are set off in bold type; the pages are broken up into short paragraphs; and the illustrative examples are blocked to attract the reader's attention. There is a glossary of words and phrases not previously defined in the text. The book is unusually well illustrated, especially the chapters dealing with negotiable instruments and property. The book is written in a style to appeal to the pupil. The addition of a teacher's manual, a workbook, and a series of standardized tests should make it equally appealing to teachers.

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An anthology organized by type and chronology.—English Literature[1] is a compilation of selected English classics in poetry and prose, arranged chronologically within type and accompanied by a summary section dealing with social and historical backgrounds from English history. In an effort to present a more complete picture of the whole field of literature than is commonly furnished in such compilations, the authors devote two-thirds of the volume to the reproduction of one novel and three plays: *Henry Esmond, Macbeth, The School for Scandal,*

[1] *English Literature.* Edited by Thomas H. Briggs, Max J. Herzberg, and Emma Miller Bolenius. Boston: Houghton Mifflin Co., 1934. Pp. xii+770. $2.12.

and *Riders to the Sea*. For schools deficient in library facilities, such a plan may prove a welcome economy. On the other hand, inclusion of these selections limits the space available for the other phases of English literature to 230 pages devoted largely, in this instance, to selections from *Beowulf* to Stevenson. Chaucer is accorded eighteen pages; Addison and Steele, fifteen; and twentieth-century poets, three. Most extensive of the sections on modern literature are the space allotted the short story, which is represented by Kipling, Conrad, H. G. Wells, and Katherine Mansfield, and the space given to modern journals and biography, which includes generous selections from Fleming's *Brazilian Adventure* and *The Letters of Gertrude Bell*.

The organization of the book is such as to make it useful for courses taught either by type or by chronology. In addition to the inclusion of the four longer titles mentioned, the volume is differentiated from earlier compilations chiefly by its helps, which are graduated according to difficulty for pupils of varying levels of ability. General questions, class activities, suggestions for composition, and objective tests on the selections aid the teacher in directing the study of the average pupils, and questions from recent College Entrance Examination Board papers and certain critical studies are furnished as a guide to further thought and study for more highly selected groups. Exercises in the use of the library afford practice in tracing down related materials, while additional references of a critical and historical nature open up for the superior pupil alluring paths for further investigation. Less abundant are the suggestions for additional reading of a kind similar to the literary selections themselves.

Altogether, the volume seems especially well adapted to college-entrance groups pursuing the traditional program in English literature.

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Contributions of ancient history to modern civilization.—To make history vital and real and applicable to the everyday experiences of boys and girls is the difficult problem facing conscientious teachers of history. One of the most difficult tasks in history-teaching is to locate for younger pupils colorful and simple reading materials for the period from antiquity to 1750. Miss Gibbons has made a valuable collection of references in her new guide[1] which will be welcomed by teachers who have searched for just such materials.

She has also used a happy method of presentation in her attempt to choose primarily those themes which have made lasting contributions to present-day civilization. Each unit is introduced by a general explanation which lays the background and gives a forward look and creates a desire on the part of the

[1] Alice N. Gibbons, *Directed Study Guide in the Origins of Contemporary Civilization: A Foundation Course in Social Science*, pp. viii+256, $0.80; accompanied by *The Teachers' Manual*, pp. iv+76, $0.28, and *Test Book in the Origins of Contemporary Civilization*, pp. iv+92, $0.44. Boston: Ginn & Co., 1934.

pupil to adventure into the story thus opened to him. For example, Unit V, which is devoted to "The Debt Our Modern World Owes Ancient Rome," concludes the foreword with this statement.

> Seemingly "the grandeur that was Rome" was destroyed, but in reality it was only her pomp of political power that was gone. The best of Rome has remained to enrich our modern world. We still have the examples of loyalty and service set by her great citizens, her splendid principles of human organization and justice, her beautiful language and literature, and her great designs in architecture and engineering. This best of ancient Rome—her creations in thought, deed, and character—is immortal" [p. 112].

The introduction to each unit is followed by a "List of Problems To Be Studied." Each of these problems is supported by study activities for the entire class, which bring out many modern applications of the historical reading. The lists of readings are particularly rich in colorful, pictorial references. Use is made of drama, art, travel, literature, and fiction. The careful and explicit "Directions for Study" avoid generalizations and emphasize exact information, a matter ignored by most guidebooks. Suggestions of additional "Activities for the Ambitious" are most attractively chosen. The summary which concludes each unit draws the threads of study together and enables the pupil to see the point of his study in the light of his own day. Themes are often suggested which put such information to the test. For example, after the study on Rome the pupils are asked to write a theme on "How Great Romans Have Served Our Generation," "My Daily Contacts with Ancient Rome," or "What a Roman of the Time of Diocletian Would Find Familiar in My Town Today."

The guide contains an excellent "Comparative Table of the Development of Civilization (500–1789 A.D.)" and illustrative charts. Miss Gibbons has made an original attack on the oriental contributions to modern civilization, a phase of the history of this period too often ignored. She deals with Bagdad, Cordova, Byzantium, and Cathay—fairy-story names with most people—and shows that each has made a notable donation to the history of mankind.

The guide is filled with references to many modern books and quotes often to show modern points of view. The strength of the guide, in the reviewer's opinion, rests not in its organization, which is not new, but in the colorful choice of readings and in the setting-up of problems with a modern application for instruction in a period of history far removed, in the thinking of most history teachers, from everyday experiences. It meets the newer demand that much of the dead factual material be omitted from courses in history and that facts and events and personalities be presented which can make of history a live, moving dramatic story of men and events contributing to the forward march of all civilization.

It is profoundly to be hoped that curriculum directors and teachers who participate in the making of history courses will make a thorough study of this scholarly, colorful, and practical guide.

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Textbooks in mathematics for junior high school.—It is probably not to be expected—nor desired—that radical departures will be made in the writing of textbooks in mathematics for the junior high school. Much has been accomplished in the past ten or fifteen years in fitting the mathematical material to the needs and the abilities of children. Much remains to be done, but the remaining needs can probably be accomplished better by gradual revision than by radical change. The introduction into the mathematics taught in the lower grades of the junior high school of intuitive and mensurational geometry, the simpler algebraic concepts of the equation, positive and negative numbers, symbols for unknown quantities, graphs, and the simplest of trigonometric concepts has become commonplace. Various devices for motivating the work have been tried, and many plans of organization have been devised to unify or to correlate and co-ordinate the materials.

Some of the curriculum-makers and textbook-writers have evidently proceeded on the theory that the main objective is to unify the mathematical material within itself. Others have apparently attempted to deal with the strictly practical, while some have shown efforts to make the subject more generally cultural. Still others have attempted some correlation with other subjects in the curriculum in an effort to make mathematics a service subject to other studies. All recent textbooks show a laudable desire to abandon, in some degree at least, the ancient disciplinary conception of mathematics.

In a new textbook for Grade VIII[1] (the volume for Grade VII having previously appeared), roughly a third of the material is devoted to arithmetic and geometry, while the second half of the book is devoted to algebra alone. Much practical informational material is included in the arithmetic sections in the chapters on banking, savings and investments, taxation, and insurance. An additional chapter is devoted to the fundamental operations in arithmetic, with later reviews on the fundamentals. The "spaced learning" provided in the alternation of chapters in the first half is one of the features of the volume. The continued use of geometrical materials and the necessity for arithmetical computation in the second half of the book extend the use of spaced learning throughout the year. A large variety of illustrations and lifelike applications gives the book a practical as well as a cultural tone. Diagnostic and achievement tests, chapter summaries, review exercises, and reference tables provide excellent teaching helps.

Another series,[2] appearing in three volumes, is designed to cover the mathematics to be offered in Grades VII, VIII, and IX. Each book is arranged in units, Book One having nine units; Book Two, ten units; and Book Three, twelve units. In Book One the units are on whole numbers and decimals, fractions,

[1] William Betz, *Junior Mathematics for Today*, Book Two. Boston: Ginn & Co., 1934. Pp. x+438. $0.96.

[2] John C. Stone, Clifford N. Mills, and Virgil S. Mallory, *Unit Mastery Mathematics:* Book One, pp. vi+314, $0.96; Book Two, pp. vi+432, $1.00; Book Three, pp. vi+470, $1.20. Chicago: Benj. H. Sanborn & Co.

percentage, thrift, arithmetic in business, geometrical figures, geometry of size, graphs, and a review of the year's work. Roughly a third of the book is devoted to geometry, the remainder being arithmetic.

In Book Two the units are on measuring surfaces, measuring solids, percentage, thrift, investing money, protection against loss, taxation, ratio and proportion, and squares and square root. In Book Three the first eight units are on the usual material in algebra up to and including about seven pages on quadratic equations. The ninth unit is on geometrical measurement and trigonometry; the tenth unit, on material preparing for demonstrative geometry; and the eleventh unit, on demonstrative geometry. The last unit is a review unit.

Several features of this series stand out rather clearly. Most of the units include a number of types of materials, with illustrations drawn from a wide variety of sources. One may question whether the "units" are really unitary in character, whether they point toward one major idea. Certainly the titles of the units do not indicate, with any degree of accuracy, either the content or the goal of the units. One example will suffice to make this point clear. The first unit in Book Two is entitled "Measuring Surfaces." Over twenty-five of the sixty-six pages in this unit are devoted exclusively to equations. In fact, this unit is the only place before Book Three in which equations and their solution are discussed specifically. The illustrations in all three volumes place unusual emphasis on the use of geometrical material. No algebraic material, with the exception of some use of the formula, is found in Book One. The use of algebra in Book Two is also somewhat restricted. A fifth of Book Three is devoted to geometry and trigonometry, in addition to geometrical illustrations used in other parts of the volume.

Books One and Three have review units, but Book Two has none. Decimal fractions are studied in Book One before common fractions. Commendable features of the series are the inclusion of much general informational material for illustrative purposes, the grading of exercises to fit differences in ability of pupils, reference tables, review and test material, and mid-term tests which may be secured in separate booklets.

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GENERAL EDUCATIONAL METHOD, HISTORY, THEORY AND PRACTICE

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